

Railway Age

FEB 20 1922

FIRST HALF OF 1922—No. 7

NEW YORK—FEBRUARY 18, 1922—CHICAGO

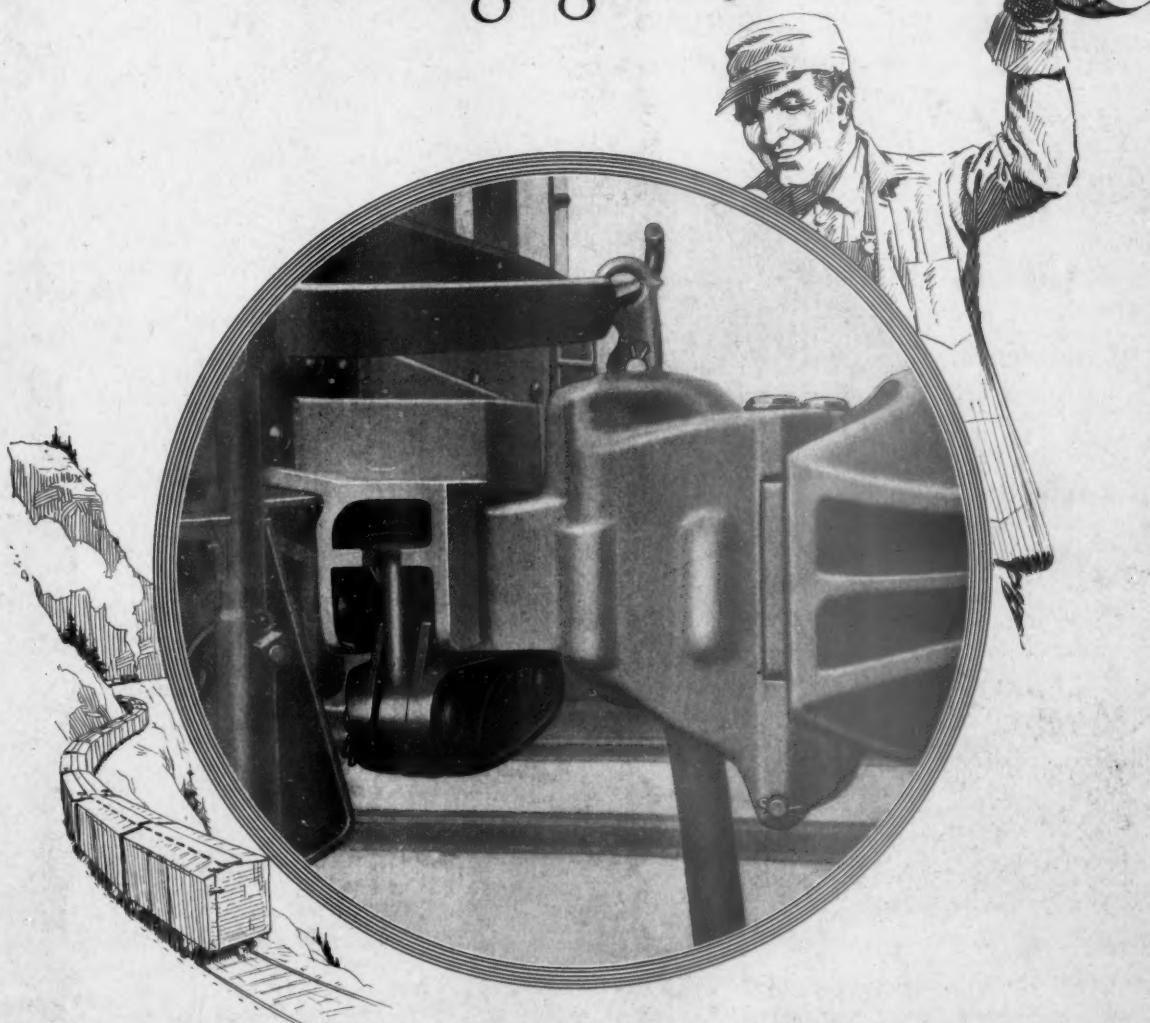
SIXTY-SEVENTH YEAR

Published weekly by Simmons-Boardman Pub. Co., Woolworth Bldg., New York, N. Y. Subscription Price U. S., Canada and Mexico, \$6.00; foreign countries (excepting daily editions), \$8.00; single copies, 25c. Entered as second-class matter, January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

Imperial Centering Device

Swings like a Pendulum

*Heavy Type "D" Couplers
need swinging carry-irons*



Imperial Appliance Company

New York
347 Madison Avenue

Chicago
20 W. Jackson Blvd.

"ACCO" CHAIN

for the Heavy Maintenance of Way Jobs

The renewal of a crossover switch without interruption of traffic demands not only the most careful arrangements beforehand but reliable equipment to actually do the job without delay.

Here is an 18 ton crossover switch being renewed at a large and busy Railroad Terminal without holding up traffic. 30 minutes were allowed for the job—two cranes and 4 lengths of "ACCO" chain did the job in 25 minutes. It is on a job like this that "ACCO" chain emphasizes its real worth. Had the chain failed, the job would have failed too. "ACCO" chain always comes through, because it has reserve strength built into every link, and will stand a great strain if the emergency calls for it.

Brake Chain
Crane and Shop Chains
Derrick Chains
Safety Chains
Steam Shovel Chain
Steam Hose Chain
Switch Chains
Wrecking Chain
and Chain for every Purpose used on Railways.



AMERICAN CHAIN CO.^{INC.}

BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Company, Limited, Niagara Falls, Ont.
District Sales Offices: Boston, Chicago, New York, Philadelphia, Pittsburgh, San Francisco, Portland, Ore.

EDITORIAL

Railway Age

The Table of Contents Will Be Found on Page 5 of the Advertising Section

As will be noted on another page of this issue, a bascule bridge of an entirely new type was recently placed in service on the Wabash at Detroit. This structure is of interest as marking the first important innovation in bascule bridge design for a number of years. About

A New Type of Bascule Bridge

About 1900 new developments in bridges of this class were rather common but for the last 10 or 15 years the structures built have been limited almost entirely to two or three types. These have not competed with new bascule designs but with vertical lift spans, a class of movable bridge in which the development during the last 10 years has been much more active. The fact that a new design of heel trunnion span has been evolved serves to indicate that the last word has not yet been said in the development of the bascule bridge.

The effectiveness of an army is largely dependent on the quality of its subalterns; that of a railroad depends largely

The Human Side of Railroading

on its foremen. Given a corps of intelligent, thoroughly-tried foremen, whose energies are being directed by a loyal enthusiasm for the company which employs them, and efficiency of work is assured. Times like these are exceedingly trying for the spirit of these foremen. "I was put back to painter early last year," writes one of them, "but was reinstated as foreman in July. The first of this year I was set back to assistant foreman with only three men, but I hope it will not last long." This is not from an employee of limited service, but from one who has given at least 25 years of his life to the railroad. Surely these vicissitudes must sorely try his loyalty, must make him feel that he is but a pawn on a great chessboard. Retrenchments are necessary and will continue so as long as our economic life is marked by waves of expansion and depression. But would it not be possible to carry out the drastic reductions in force with a greater manifestation of sympathy for those who suffer hardships in consequence? Explanations to these loyal foremen of the conditions that make it necessary to lay them off, together with assurances of restored positions as soon as conditions change for the better, would bring a return in sustained good will far exceeding any outlay involved.

The general character of the motive power operating problem on the small road is not essentially different from that on a large system. The number of locomotives may be comparatively small but the changes that have taken place in

Locomotives for Small Roads

economic conditions, the increased size of bills for fuel and maintenance, coupled with inadequate revenues, have rendered it just as essential that every step possible be taken to reduce the cost of locomotive operation. The small road may not be called upon to haul long and heavy trains, and relatively light locomotives may furnish adequate power, but the locomotives on such roads are usually notably inefficient and frequently quite old. It may not, and generally will not be feasible at

the present time to order new and modern locomotives. However, some small roads have made remarkable reductions in fuel consumption and in maintenance costs by replacing their worn-out locomotives by rebuilt locomotives purchased from larger roads. There are thousands of locomotives which no longer are capable of economically handling main line traffic, but which, if rebuilt and equipped with superheaters and other fuel economizers, are capable of efficiently meeting all the requirements of the average small road.

This phrase is used in England to describe the constant increase in the number of conditions under which reduced passenger fares are applied. The rail-

"Reductions

by Installments"

ways have not made any reductions in basic rates, yet they announce at frequent intervals additions to the imposing list of conditions under which reduced rates apply. There would be few to contradict the statement that in this country reductions in freight rates are of greater economic importance than reduced passenger fares. Any changes that may be made in passenger rates, then, should not be concessions to the traveling public resulting in reduced earnings for the carriers—if such sacrifices are made they should be in freight rates. The only justification for alterations in our passenger tariffs should be to increase—not reduce—railway revenues. In other words, what our railways need is to fill the vacant seats in trains now running—by the extension of the sale of excursion and tourist tickets at reduced rates, if necessary, and without permitting ordinary traffic to move under the lower rates. Our roads have taken some steps in this direction, but the British railways have gone farther and are making a thorough experiment with these rates which can well be followed with interest. If "reductions by installments" can be made to increase net earnings and at the same time to build good-will for the railways in the minds of the public, then the practice should be given wider application in this country.

The railroad problem in the United States would be fairly easy to solve were it not for the labor situation. The roads will never succeed if they do not have the hearty co-operation of their employees. Do the labor leaders want to destroy the roads? Are they doing anything to help to bring about the

right sort of co-operation? Fairness and frankness must characterize all negotiations and intercourse between the managements and the men—any other course followed by either the managements or the men is suicidal. The labor union leaders for some years, for reasons best known to themselves, have apparently believed that it was good policy to throw mud at the railroad managements; sometimes referring to misdeeds of the past, sometimes through misrepresentation by skilful juggling with figures in the hands of the so-called expert labor economists. Secretary Hoover, when cross-examined in the Interstate Commerce Commission general rate investigation, neatly called the turn on

Clifford Thorne, who represented certain shippers, when he referred to past financial transactions. "Oh yes," Mr. Hoover said, "I have been hearing about that ever since I was a boy, but we have got to live for the future and not rehash the past." One of the nastiest critics of railroad managements is the Plumb Plan publication known as "Labor." It is not only poisoning the minds of railroad employees but, through the influence of the labor unions, is being widely quoted in the daily newspapers and is carrying on a most unfair propaganda against the railroads. Possibly it is not out of place in this connection to take another quotation from Mr. Hoover's testimony: "Finally, I want to refer to the veritable witches' cauldron being fed constantly with hates distilled from the misdeeds of railway promoters in the past, from the conflicts between the railways and the farmers, between the railways and their workmen. From all the confusion that arises from it we destroy our railways and destroy ourselves. With this commission on one hand assuring honesty in finance, justice to the shipper and the railway investor; with the Railway Labor Board assuring justice to workers and, above all, with a great spirit of public service in our generation of railway managers, it is time to call off the witches and take some vision of our national situation if we are to pull ourselves out of this depression." Is it not fair time that the reactionaries among the railroad executives and the radicals in the ranks of railroad labor awakened to the disaster that surely lies ahead unless they get together on a common basis and stop trying to cut each other's throats?

In considering the proposed order for train control prepared by the Interstate Commerce Commission, the railroads must necessarily be guided largely by the

Interpreting Train Control Specifications

It would appear that these specifications were prepared with the idea that many changes will be found necessary after more extensive service installations have been made. Inasmuch as they appear to represent what are considered as the theoretically ideal requisites it would seem that the Commission must allow the carriers considerable latitude in the selection and installation of devices which they think will best meet their respective operating conditions. One road may desire a device having speed control and a positive stop; another may desire one without the speed feature and with a permissive stop, while still other carriers may desire different combinations. If progress is to be made in this development and experimental work it will be for the railroads to be allowed a certain degree of freedom and it is to be hoped that the officers studying this problem will be encouraged to interpret the specifications liberally in order that the maximum information may be secured.

A picture was recently received in this country from Japan showing two Japanese laborers shaping a long bridge timber

Don't Neglect Mill Room Equipment

with a cross-cut saw. The timber was supported above the ground and one bare-footed sawyer stood on it, the other working from underneath. While this method of sawing lumber may be economical and satisfactory in countries where laborers can live on a few ounces of rice a day, the standard of living in America is higher; labor receives relatively greater pay; and economical operation in most industries can be secured only by utilizing labor-saving machinery wherever possible. Owing to the greatly increased use of steel in bridge, car and building construction and repair work during the past few years, many people forget how much wood is still used for

these purposes. Consequently they fail to appreciate the need of modern woodworking machinery in car shops. Mill room equipment receives far less attention than formerly and less, in fact, than it deserves. A single large eastern railroad, for example, uses approximately 100,000,000 board feet of lumber annually for bridge timbers, car sills, framing, flooring, roofing, siding, lining, etc., exclusive of ties. When it is remembered that there are about 200 Class I roads in the United States some of which use less but others probably more lumber than the road quoted, some conception is reached of the enormous total consumption. The need of modern efficient woodworking machinery for finishing this lumber is self-evident.

The electrical illumination of passenger car equipment has been established for years. However, far too many roads ac-

Car Lighting Costs	cept the charges for this service as necessary without ascertaining the actual cost of lighting a car each month. On a certain large western road an officer inquired recently regarding the car
---------------------------	--

lighting costs only to learn that no one had checked such charges lately. A hurry-up call was then sent out to assemble all charges for battery renewal parts, jars, generators, belts, and other equipment. Time-books of various electricians and car repairs were checked, etc. The result of the accounting showed that while the average cost of car lighting was well within reason certain excessive expenditures were very evident. Having inaugurated an accounting system for various car lighting equipment and parts, this road is now in a position to introduce numerous economies. Another road discovered that the charges for repair parts and labor for the maintenance of the batteries on a certain car were three times what they should have been. This road also is now delving into the detailed charges of its car lighting service. One expert claims that over \$10,000,000 is spent annually for car lighting equipment and repairs; every road should know where its share is going. Some roads prefer to have all car lighting equipment furnished and maintained by a supply company on contract at a certain price per car per month; the Pullman Company also has a fixed rate for lighting cars furnished to the railroads. A comparison of these figures with the actual charges on many roads should show that extensive economies in car lighting service are possible.

The discussion of the question whether train orders may safely be intrusted to station operators, to be delivered without requiring conductors to sign them,

The Argument for Train-Order Form 19

which was continued through a half dozen issues of the *Railway Age* last autumn, was unavoidably suspended, in December, while yet unfinished; but it is resumed this week, and the article from E. W. Weston, of the Northern Pacific, now presented, may well serve as a concluding chapter. (The articles referred to appeared in the issues of September 10, pages 474 and 479; September 24, pages 557 and 562; October 8, page 662; October 15, page 703; November 12, page 933; December 3, page 1107 and December 10, page 1129.) It seems to us that the advocates of Form 19 have won their case. Mr. Weston clinches his argument with a statement, quite conservative, of money saved; but he has a strong case aside from that. On a busy single-track line simplicity and celerity are important elements in train operation, even if they were costly. The punctuality and regularity of passenger trains, promoted by improving the movement of all trains, is a valuable asset, even though it cannot be financially measured. The experiences of the Great Northern and the Hocking Valley confirm

the Northern Pacific's report. It should be noted in particular that neither Mr. Forman nor Mr. Weston rests his argument on having the train order system reinforced by the block system. The block system should be used everywhere; and those roads which have discontinued Form 31 only where they have automatic block signals cannot claim to have done any great thing. We say that our friends have made out their case; but this does not mean that there can be mathematical proof. These experienced observers are, indeed, perfectly satisfied that fewer failures have occurred with Form 19 than with Form 31, and that in the nature of the case the conditions in the future must be like those of the past; but, as everybody knows, a disastrous collision always gives a black eye to all those features connected with its cause which are not ideally perfect, whatever may be the main cause; and therefore it is proper to bear in mind that those dispatchers who argue for Form 19 make no claim of infallibility. The best thing for the doubter to do is to read the arguments over again, and do the whole job at one sitting.

Efficiency of Government and Private Operation

TH E most striking fact in the railroad history of the year 1921, except the decline of traffic, was the large reduction of operating expenses. The most striking feature of the reduction of expenses was the very large part of it which was effected by reducing the number of employees.

Two former director generals under government operation, W. G. McAdoo and Walker D. Hines, recently have been testifying before a Senate committee in an effort to show that the railways were operated with the greatest efficiency practicable under government control. They made special efforts to vindicate the Railroad Administration's labor policy. Meantime, the railways under private operation have been effecting increases in efficiency and economy which afford the best answer to the statistics and arguments of Messrs. McAdoo and Hines.

The defenders of government operation have made much use of comparisons of the operating expenses under government control in 1918 and 1919 and under private operation in 1920 to support their claim of relatively great efficiency under government control. But, as has repeatedly been pointed out, when the railways were returned to their owners their operating expenses had been increased under government control until they were on the highest level ever reached up to that time. The companies had to operate them with working conditions for employees which had been established by the Railroad Administration. They had to pay until May 1, 1920, the highest scale of wages that was paid at any time under government control, and the rest of the year the still higher wages fixed by the Railroad Labor Board. They had to charge into their accounts materials and supplies at prices which had been paid by the Railroad Administration, and to pay prices for coal which also had been largely established by the government. They had to fight the outlaw switchmen's strikes and to deal with the demoralized transportation conditions which they caused. They had to handle the largest traffic ever moved in a single year.

For these reasons, to compare the operating expenses of 1920 with those under government control is likely to lead to unreasonable and unjust conclusions. The private managements did not have a fair chance in 1920 to make improvements in operating methods which would show the relative economy of private as compared with government operation.

The railways were operated by the government 26 months, during 16 months of which the country was at peace. It is now almost 24 months since they were returned to private

operation. The government had ample opportunity between the signing of the armistice and the return to private operation to show what it could do in operating the railways under conditions of peace. The companies have now had almost two years in which to show whether they can operate the properties more efficiently and economically than the government. The operating results of the closing months of government control and of recent months under private management, therefore, afford material for an instructive comparison of the relative efficiency of government and private operation.

The most outstanding fact about government operation is that under it the operating expenses of the railways were always increasing whether the traffic handled was increasing or not. The traffic handled in 1919 was less than in 1918, but this decrease in the traffic handled was accompanied by an increase in operating expenses. On the other hand, while under private operation in 1920 an increase in traffic was accompanied by a large increase in expenses, as soon as the traffic began to decline the operating expenses began to be reduced, and in the first eleven months of 1921 the total operating expenses were \$1,070,000,000 less than in the same months of 1920.

Furthermore, this reduction of operating expenses has grown relatively greater month by month. Every business man knows that it is extremely difficult in a period of declining business to reduce expenses, and especially labor costs, in proportion to the decline of business. This is especially true in the railroad business. A manufacturer can close his plant and stop most of his expenses. A railway must continue to operate regardless of how much its business declines, and, therefore, most of its expenses must go on. The railways, under private operation, have, however, reduced their expenses almost in proportion to the decline in their business in spite of the fact that the decline in business has been the greatest that ever occurred. They have been rendering more passenger train service than in 1919. They have been handling only about 12 per cent less freight. Wages are the largest item of railway expenses, and the cost of fuel is one of the largest items. They are paying higher scales of wages and higher prices for coal than in 1919. Nevertheless, in the last three months for which complete statistics are available, September, October and November, their total operating expenses were less than in 1919. Their total operating expenses in these months of 1919 were \$1,196,000,000, and in 1921, \$1,142,000,000.

The principal cause of the large and practically uninterrupted increase of operating expenses under government control was the Railroad Administration's labor policy. Mr. McAdoo has attempted to show that if the railways were not operated with the highest efficiency under government control it was largely the fault of railway officers trained under private operation, since they constituted most of his staff. But these railway officers were not responsible for, and most of them were not in accord with, his labor policy, and it was the increase in the number of employees as well as in their wages that caused most of the increase in operating expenses. In December, 1917, when the government took over the railways, they had 1,703,748 employees. In January, 1920, a month before they were returned to private operation, they had 1,953,571 employees, an increase of 249,823. The average number of employees in 1919 was 1,913,422. As already indicated, the railways in 1921 rendered more passenger service than in 1919, and in the first ten months of the year 1921 rendered only 12 per cent less freight service than in 1919. The average number of employees in these months, however, was only 1,656,615, or 13½ per cent less than the average number in the year 1919. The reduction in the number of employees was actually greater than the reduction of freight business handled.

The latest month for which we have complete statistics of railway operation is October, 1921. The railways rendered 371,000 more train miles of passenger service in that month

than in October, 1919. They handled only ten per cent less freight. In October, 1919, however, the number of employees was 1,977,616, while in October, 1921, it was only 1,754,136, a reduction of 223,480, or over 11 per cent. The scale of wages paid was higher than in 1919; and yet the reduction in the number of employees was so great that whereas in October, 1919, the total wages paid were over \$253,000,000, in October, 1921, they were only \$237,600,000.

While the freight business handled in 1921 was less than in 1919, the amount of freight business handled per employee was greater. The number of ton-miles per employee in the first ten months of 1919 was 171,309, while in the first ten months of 1921 it was 174,670. The railways have not only within the last year greatly reduced the number of employees, but they have increased the average miles run by freight trains and adopted numerous other methods which have resulted in greatly reducing the amount of overtime for which they have had to pay. This elimination of overtime paid for at punitive rates helps to account for the reduction in the total wages paid.

It may be said that a large part of the reduction in operating expenses, and especially in the number of men employed, has been due to the reduction and deferring of maintenance work. This is true, but the Railroad Administration was not in the latter part of 1919 using for maintenance relatively any more of the money spent for operation than the railway companies have been recently. In both October, 1919, and October, 1921, the expenditures for maintenance were 46 per cent of the total expenses of operation. The fact is that under private operation the railways have made almost as large reductions in transportation expenses, which represent a real economy, as in maintenance expenses which do not always represent a real economy.

The Interstate Commerce Commission publishes monthly the unit costs per train mile for locomotive repairs, wages of enginemen and trainmen, fuel, engine house expenses and other locomotive and train supplies. These "selected accounts" are partly maintenance but chiefly transportation expenses. It is a notable fact that the totals of these "selected accounts" per freight train mile increased from \$1.674 in March, 1919, to \$1.923 in February, 1920, the last month of government control. They were never so high again until after the wage advance granted in July, 1920. They reached their maximum in August, 1920, when they were \$2.40, and after that they were reduced until in June, 1921, although the high wages fixed by the Railroad Labor Board were still in effect, they were \$1.753. In October they were only \$1.639. They had been reduced to almost the same amount as in October, 1919, when they were \$1.617, in spite of the fact that both the wages of enginemen and trainmen, and the price of coal were higher in October, 1921, than in October, 1919.

The railways have benefited by the large economies in operation which have been effected under private management. The fact that within recent months they have been earning larger net returns than a year ago is mainly due to the economies that have been made. The public also is benefiting by them. It is an actual fact that although railway labor is being paid a higher scale of wages, the coal operators are being paid more for coal and the public is being charged higher freight and passenger rates than two years ago under government control, the public is really paying practically no more for its freight and passenger transportation than it was two years ago. The last month for which statistics of railway earnings and expenses are available, is November. The total cost of railway transportation to the public in November, 1919, including earnings derived from their rates, with the deficit incurred by the Railroad Administration added and the taxes paid by the railways subtracted, amounted to \$481,000,000. The total cost to the public of railway transportation in November,

1921—that is the total earnings derived from the rates charged, with the taxes paid by the railways subtracted—was \$440,000,000, or 8½ per cent less than in 1919. The number of tons of freight carried one mile was only 10.4 per cent less than in November, 1919. In other words, the railways paid a higher scale of wages to their employees and higher prices for fuel, and yet earned a larger net return and rendered service at a smaller net cost to the public than in November, 1919.

The outstanding things shown by the facts which have been stated are that under government operation, even after the war was over, the general tendency was for the number of men employed and the expenses incurred to increase faster relatively than the traffic increased, while under private operation, both before and since government control, the general tendency always has been for operating expenses and the number of men employed to increase less in proportion than the traffic when the traffic is increasing, and to decline sharply when the traffic declines. The year 1921 was an extremely hard one for the railway companies, but the increases in efficiency and economy secured in that year are the best possible answer to the claims of the defenders of government operation as to its superior efficiency.

On "Selling" the Railroads

THE railways of the United States make as good transportation as any railways in the world. They sell it cheaper than any other railways in the world. They are selling their commodity relatively more cheaply to-day than most other commodities are being sold in this country.

In spite of these facts the management of the railways and their rates are the objects of general and even bitter attack. They are constantly misrepresented, and many people believe the misrepresentations.

What is the reason for this condition of affairs? There can be only one answer. The railways have not been and are not being properly "sold" to the public.

What is wrong with the way they have been and are being sold? The answer to this question might be found in a study of the selling methods of many other classes of concerns which do not make relatively as essential or as good commodities as the railways do, which charge relatively much higher prices for them, make many times as large profits and yet escape all the attacks, all the trials and tribulations from which the railways suffer.

For example, look through the advertising columns of any large magazine or newspaper. Note the large amounts of space which are occupied by the advertisements of automobile companies, chewing gum companies, oil companies, telephone companies and concerns of almost every other kind. Note also that this is "institutional" advertising as well as commercial advertising—advertising intended to "sell" the concern itself as well as its product.

Then look for the railroad advertising. Having found it, if you can find any, compare—or contrast—it with the advertising of other classes of concerns. What you will find of it is good. But you won't find much.

We mention advertising only as an example.

The railways are not "selling" themselves to the public. The trouble is that most of them are not even trying to. If the railways would make relatively as great efforts and spend relatively as much of their earnings in selling themselves to the public as most other classes of concerns do, the railroad problem would speedily be advanced a long way toward solution. If the railways were as efficient in selling themselves to the public as they are in serving the public they would soon be the most popular and among the most prosperous concerns in the United States.

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated.]

Ammunition for Lauck and Plumb

PHILADELPHIA, Pa.

TO THE EDITOR:

Your columns abound with eulogies for the railroad officials and with condemnation for government ownership and labor unions; therefore, I would like to have you ask this question of railway executives through your columns:

"Why is it, if net returns do not cover operating expenses, that they are continually making capital expenditures for improvements and charging the material and labor to operating expenses? This is in strict violation of I. C. C. Rules and the law governing. Is this done to increase the cost of operation so that they can advertise the facts before the public and better fortify their contention for another wage reduction and hold on to their high rates?"

This practice is being carried out on nearly all railroads and the employees are gathering all the information they can for Jett Lauck and Mr. Plumb's paper "Labor".

I should like to see this answered through your columns by some railway executive.

"AN OBSERVER."

College Training Does Not Make the Man

BOSTON, MASS.

TO THE EDITOR:

"One Who Has Seen" (*Railway Age*, December, 10, 1921), still has the Missouri delegation to convince. The Romans gathered "not to bury Caesar but to praise him"; had "One Who Has Seen" been at the gathering, his interest would have doubtless centered on the interment. Having satisfactorily sung the obsequies for the railroad and semi-other-business demise of 61 of his railroad service co-starters; thrown the spotlight on six and the dimmed spotlight on one of the remaining co-starters whom he can recall; lit the pean of hate for colleges, college education and college men in general; and having placed the other "granger" starter who began his railroading in the president's office at the behest of an influential, interceding friend in a strategic position to finally accept modest praise at the call of "Gunga Din," our college man's friend states—"After all is said and done, the qualities which help men to succeed in life are *born in them* and not taught them," and then naming "two qualities most necessary to success in railroad work," we find that "the 'Call Boy' has these *driven into him* from his start at 16 years of age."

What is this? A case of "Ye must be born again! 'Call Boy,' Ye must be born again!"

No! Our friend "Who Has Seen" and "A. R. A. Clerk" who appeared in *Railway Age* of October 8, are not temperamentally qualified—the former to give an unbiased opinion of the present day representative college and college man, or the latter to give an unsoured estimate of the real non-college railroad man.

A man is a man be he college or self-educated, or be he without education at all; nor can criticism from an embittered viewpoint harm him.

"SHOW ME."

Speeding Up Car

Movements at Terminals

NORTHWEST REGION.

TO THE EDITOR:

What Mr. Ford is reported to have accomplished on the D. T. & I. in the way of speeding up the movement of cars and in getting a full day's work for a day's pay is no more than can be accomplished on other roads and what has been accomplished on some of them. As proof of this I will cite my own experiences in revising the methods of operation of a large terminal.

I came to this railroad about two years ago and had some trouble in getting established, as I was a rank outsider. I used all the diplomacy that I knew, and had to go a little slow for 60 days until I had my bearings and learned the operation of the division. Then I commenced to make changes in the method of operating the terminals. Trains, both inbound and outbound, were being handled from several different yards, cars were being cross hauled and thus delayed, yard power was being worked practically without system and engines were loafing on the job everywhere.

My first move was to line up a system of handling transfer crews connecting with time freight trains, getting them running on a tight schedule so that they had no time to loaf and insisting that time freight trains should run on time every night. The result was that some transfer crews were taken off and our time freight trains moved on time and ahead of time every night. Then I gave the work each engine was doing some study and found out that in some yards power was being milled around, several engines being sent into the same territory to do work that one crew could have done if it had been properly lined up at the start. This resulted in taking off more power, as I was getting more work out of every engine. At the same time I was checking up loaded cars left off time freight trains, cars not placed on repair tracks promptly, and empty cars not moved up and classified, and found that cars were being delayed badly because we had no follow-up system in effect so that we would know just what was being left over after each fast freight train and why.

We started a system under which the agent and yardmaster in each yard kept a check of every car in his territory that would be ready by 5:30 p. m. for the night time freight trains, and also made arrangements with connections so that we knew what loads they were going to deliver us for the night trains. Each yardmaster was held responsible for seeing that every train load in his territory was switched out, weighed and brought to the classification yard in time to connect with the night trains. This was no small job as every time a car was passed up there were any number of excuses as to why the car was not gotten out. By checking each car and demanding an explanation on it, it was not long until every one understood that no excuses would be taken for delayed cars and, like the reduction of power, it now comes easy.

The moving of loaded cars to and from repair tracks was handled in the same way, and a recent check of all of our time freight trains for a period of one week showed that out of all the cars handled on these trains there were but four that did not move on the first train after they were loaded, billed and ready to move, two of these having been held for daylight inspection of contents.

As to getting a full day's work for a day's pay, our record of cost per car as reflected by reports furnished by the auditor for the month of July as compared with previous years shows a decrease in the cost of handling cars of 22 per cent as compared with July, 1918, while since that time men in yard service have received about 58 per cent increase in wages. This has been brought about not only by demanding but getting a full day's work for a day's pay and at the

same time so changing the method of operation and cutting corners in every direction, as not only to speed up the movement of cars, but at the same time to speed up the movement of freight trains over this division; the reduction in the cost of handling cars is thus only a small proportion of the total amount of money saved.

ASSISTANT SUPERINTENDENT.

An Advocate of Soda Ash

INDIANAPOLIS, Ind.

TO THE EDITOR:

There is no question about the value of water treatment, for water treating plants have been used by railroads for more than 20 years. Figures compiled by the writer from shop records for switch engines using untreated water showed, in pre-war times, a boiler repair cost of 0.0153 cents per locomotive mile, while switch engines using water of the same chemical character treated in a treating plant showed a boiler repair cost of only 0.0055 cents per locomotive mile. These figures include only shop work and exclude the cost of calking flues between shoppings on the locomotives using raw water, the loss of locomotive time for such work, or the loss in fuel due to scaled heating surfaces. In another instance, a switch engine using a 40 gr. water showed a boiler repair cost 18 times greater than an engine using a 30 gr. water treated in a treating plant. The cost of treated water at the present time, including interest and depreciation on the plant, cost of chemicals, operator's wages, averages about 3½ cents per 1,000 gallons.

It is found that water from deep wells at Streator, Urbana, Sidney, Arthur, Lovington and many other points in Illinois and other states contain some natural bicarbonate of soda in addition to the usual 15 to 25 grains of bicarbonate of lime and magnesia. Inspection of the stationary boilers at any of these points shows them to be free from scale, pitting, corrosion or other evils noticed in boilers using water containing the same ingredients in the absence of bicarbonate of soda. It is natural that, upon finding these conditions and their effects, soda ash should be introduced to other waters not containing it to prevent the formation of scale and its evils. The most notable example of such application of which I know is on the Wabash, where soda ash is added in the tub to all waters not containing it naturally in quantity slightly in excess of enough to remove the sulphate hardness. Beginning in 1914, this road was able to show a reduction of 96 per cent in flue failures and a decrease of 88 per cent in firebox renewals. The writer's own experience with a limited use of soda ash on two divisions, each of which had treated water at one terminal, where formerly considerable trouble had been experienced with leaky flues and fireboxes, showed a reduction of 70 per cent in failures on the road with no increase in washouts and no noticeable increase in priming tendencies of the boilers, and the boilers are reasonably free from scale. This was accomplished at a cost of about \$1 per 1,000 freight train miles.

Boiler compounds are numerous and of many kinds. For the purpose of this discussion they will be understood as meaning only those of reliable make and of national reputation, used for the prevention of scale. Such compounds consist of soda ash with small amounts of weak organic acids or other substances to hold the surface tension of the water. They have been in use more or less since the advent of boilers, and if applied in the proper quantity and used continuously as directed they will keep boilers reasonably free from scale. In doing this, they largely prevent leaky flues and leaky fireboxes since these conditions are usually caused by scale. On a division which came under the writer's observation, where a boiler compound was used in accordance with the manufacturer's instructions, there was a reduc-

tion of 60 per cent in boiler failures, a decrease in the terminal boilermaker forces, and engines were turned and dispatched with less loss of time. The cost was \$3 per 1,000 freight train miles. Boiler compounds are expensive and roads employing chemists cannot afford to purchase such materials when soda ash can be used at about one-fourth the expense with greater efficiency and good results. Those roads that do not employ a chemist or have no one in charge of water treatment and directly responsible for the work, can often use boiler compounds purchased from reliable manufacturers to advantage. The reliable manufacturers have experts who follow the use of the compound and obtain results. This service is, of course, added to the cost of the compound and is one of the reasons for its being so much more expensive than chemicals purchased in the open market.

Water treating plants are expensive to install and to operate. They have the advantage over other methods because they remove 80 per cent of the scale-forming solids from the water. This reduces the amount of blowing down necessary on the road and the priming tendencies of the boiler. The water consumed at terminals is a large part of the total, and the water at those points should have first attention. Where the water there needs treatment, it is important to treat it by the most efficient methods. Usually this can best be done by installing a treating plant. Since a treating plant represents a considerable outlay of money, its design is a matter that must be given careful attention so that it will deliver a water uniformly treated and properly clarified of the resultant precipitate for delivery to the locomotives.

At stations between terminals where the incrusting solids are not high and comparatively small quantities are taken, the water can often be treated with soda ash more economically than by other methods, the soda ash being fed to the storage tank by a small auxiliary pump, the character of the pump depending on the methods of pumping the water. The soda ash costs less than 2½ cents a pound and no additional expense is incurred in labor applying it. The cost of apparatus to feed soda ash usually does not exceed \$150 per station. A distinct advantage is gained by feeding the soda ash into wayside tanks as compared with its use in the tender, since it usually gives the time necessary for chemical reaction before entering the boiler. The responsibility for application is placed upon the pumper where it is more easily supervised.

It should not be many years before even on roads of very light traffic it is universally understood that hard scale in a locomotive boiler is an extravagance not to be tolerated. More important than the costs ordinarily figured as due to bad water is the consequent uncertain road performance.

R. W. CHORLEY,
Mechanical Inspector, Pennsylvania System Southwestern Region.

Will Religion and Railroading Mix?

CONCORDIA, Kansas.

TO THE EDITOR:

Will religion and railroading mix?

Carlyle has said: "It seems to me a great truth, that human things cannot stand on selfishness, mechanical utilities, economies, and law of courts; that if there be not a religious element in the relations of men, such relations are miserable, and doomed to ruin."

Does not our present situation in the railroad world demonstrate Carlyle's seeming great truth?

I have taken the privilege on several occasions during the past year, at our class and safety first meetings, of trying to inject this idea; some claim it would be a fine thing if—others say it will not work. To my mind there are no ifs or will nots in it; it has been a demonstrated fact in other industries, why not railroading?

I would like to know just what per cent of railroad men are proud of their calling and take into it the spirit of the brotherhood of man, instead of the brotherhood of crafts; it seems to me that our railroads are brotherhood to death, except the right kind of brotherhood. Is not the lack of this spirit, as taught by the Man of Galilee, the reason that railroad men as a class are looked upon by the general public as a lot of roughnecks?

At our class meeting I read the communication from "An Old Railroader" in the December 3 issue of the *Railway Age*, and made this statement: "If we could Christianize this division of this railroad system it would be but a little while until the eyes of all other divisions would be turned this way to see what was happening."

The Christian religion is the biggest business in the world today, and I believe railroading is the next; the two combined would make a force so great that the kingdom would come before some of us were ready for it, for every man in the employ of the company from the president down to the track walker would be an evangelist to the community, and a booster for the railroad.

This may all seem visionary, but who ever did anything without a vision. When one looks at the bigness of it, he is tempted to exclaim, "Oh Lord, how long!"

TRAIN DISPATCHER.

Cut Out the Knocking

GREENVILLE, Texas.

TO THE EDITOR:

As an introduction to what I wish to say, I quote the following from Elbert Hubbard:

"If you work for a man, in Heaven's name work for him. If he pays you wages that supply you bread and butter, speak well of him—stand by him and by the institution he represents. If put to a pinch, an ounce of loyalty is worth a pound of cleverness. If you must vilify, condemn and eternally disparage, why, resign your position, and when you are on the outside, damn to your heart's content. But while you are a part of the institution do not condemn it; if you do, you are loosening the tendrils that hold you to the institution and the first high wind that comes along you will be uprooted and blown away and probably you will never know why."

The habit of knocking seems to be second nature with most railroad men. I have been in the business a long time and have worked in a good many division points for various railroads; but it is the same wherever you go. When not finding fault with a brother workman in our own line, such as trainmen and enginemen, we have serious complaints to make about the "boneheaded" dispatcher, the chief dispatcher and nearly all the minor officials. We also take a fall out of the management, and wind up by telling how the railroad should be run.

I often wonder why so many of us have gone so far through life, and have not been picked up to manage some large railway system. The directors are certainly letting some high class talent get away from them. Many of us are wise enough to tell them how to run the railways for profit, even in these dull times, and never cut the forces.

There are men that we work with that are as different in their line of work as white is from black; some men are strictly first-class in their line of work; some about the average, while others just get by and yet are equally paid for the line of service they perform. Railway managers are not alike either, but each one has to make a creditable showing or he won't last. Many of them have been connected with their company for years; others four or five years, and I have known of cases where they wound up their career in less than a year.

When one of them fails to be a financial success or is unwilling to play the game fair, he is asked to resign. (A privilege given to distinguish them from an ordinary workman.)

As for our minor officials, they too have to make a show-

ing. If they are not as efficient as their predecessors, or cannot show some improvement over them, they do not last long. So why should we always be condemning them for doing their duty? We might as well find fault with an officer of the law for doing his sworn duty. In nearly every case these same officials were one day in our ranks and we should gladly help them make good. If the men that do not suit us were removed at our request, we would be forever working for a new boss, and if there is any one thing that will disrupt the service, or injure the organization, it is the continual changing of officials. For these reasons I do not think we should be always fault finding.

If we are to make our best records, it will be with the co-operation of our officials and not by antagonizing them—neither will it be under new men whom we do not understand and whose ideas of good railroading are unfamiliar to us. The good officials of any large concern are like good teachers; they are judges of human nature, they know how to handle men so as to bring out the best that is in them. Such officials rarely have trouble with their men.

Railway employees are not disloyal—they are generous to a fault and the better side of their natures is easily reached, but the old worn out customs have got most of them. They will knock; when they meet in bunches they air out their troubles, and in doing so they often say more than they really mean.

They oftentimes speak disrespectfully of the officials of the company they work for; there are always outsiders who prove to be good listeners and go away with the impression that we railroad men are terribly mistreated and in many cases they think we are working for a lot of slave drivers. Since this impression is false it not only hurts railway business, but also the individual. Let us get out of this habit of knocking—get on the other side of the fence—let us try boosting awhile. It will not only help business and make us feel better, but also the men we work for will not appear as heartless as we thought.

Everything is changing so why not change this bad habit for a good one? If we cannot do this, but feel that we must knock, I would suggest we memorize the following:

"We would have less worldly clamor
And more roofs to shield our 'domes'
If the fellow with the hammer
Used it in constructing homes."

P. CAIN,
Dispatcher, M. K. & T.

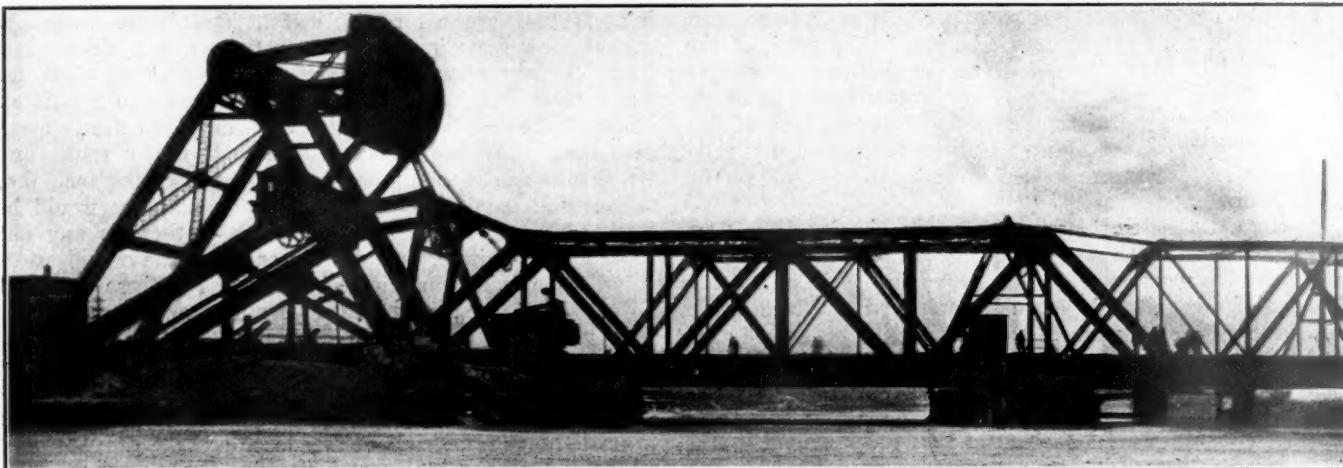
A Correction

IN THE editorial, entitled "Present Cost of Living, Wages and Rates," in the *Railway Age* of February 11, it was shown that according to a recent report of the Bureau of Labor the average cost of living in the United States in December, 1921, was 47 per cent higher than in December, 1916. The following comment was made upon this figure:

"This is the lowest figure for cost of living that the Bureau of Labor has reported since before the war in Europe began."

This statement is erroneous. The cost of living, as shown by the Bureau of Labor's report, was about 70 per cent higher in December, 1921, than in December, 1914. The statement should have been that this was the lowest figure for cost of living at the end of any year since 1917.

THE ALABAMA, TENNESSEE & NORTHERN, operating 186 miles of road and running (on the average) a freight each way six times a week and a passenger train each way seven times a week, reports, for the year 1921, that every train crew completed every trip within 16 hours, leaving nothing to report to the government under the Hours of Service Law.



View of the Bridge Just After It Was Opened for Traffic

A New Development in Bascule Bridge Design

**Old Wabash Swing Span Over River Rouge Was Replaced by a
New Structure on January 26**

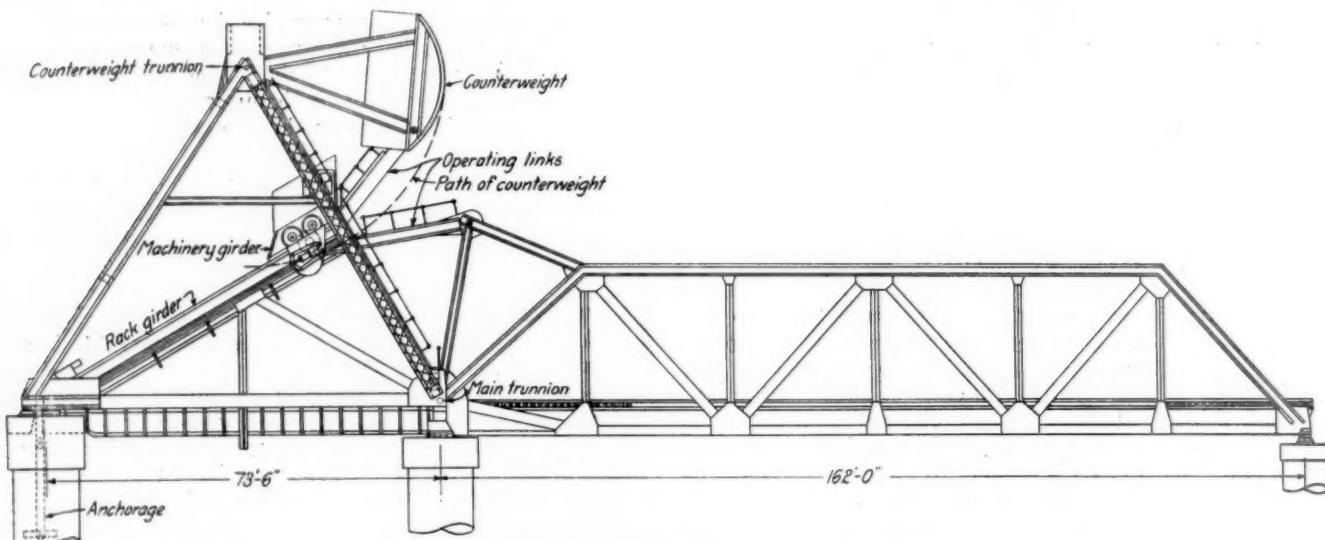
ON JANUARY 26 a bascule bridge of an entirely new design was placed in service at the Wabash crossing of the River Rouge at Detroit, Mich. The bridge comprises a single leaf span of 162 ft., a tower span of 73 ft. 6 in. and a deck girder approach span of 53 ft. 2 in. It replaces a double-track swing span which would not fulfill the requirements of a statute passed by Congress in 1917 providing for the improvement of the River Rouge to afford a waterway 200 ft. wide with 125 ft. clear openings at

(1) A plan prepared by the engineers of the Wabash of a bascule bridge with a counterweight attached to the bridge.

(2) A bascule bridge invented by C. G. E. Larsson, assistant chief engineer of the American Bridge Company of New York, which required no counterweight and which was operated by combined pneumatic and hydraulic machinery.

(3) A Strauss bascule bridge.

(4) The Cummings type, patented over 20 years ago and since expired, was proposed by the American Bridge Company, but Mr. Cunningham would not accept this unless so designed



General Elevation of the River Rouge Bridge

bridges. This same project was responsible for a similar replacement of the Michigan Central bridge over this waterway, completed some time ago.

The selection of the type of structure was made after a consideration of four designs of bascule bridges and a vertical lift span. The designs considered and the conclusion reached by A. O. Cunningham, chief engineer of the Wabash, under whose direction the design and construction of the bridge were carried out, were as follows:

that the counterweight was attached to the moving leaf by links. After making a thorough study, the American Bridge Company finally submitted a design, which met these requirements and which is now known as the "Abt type." The design so submitted being acceptable, the contract for the superstructure was awarded to the American Bridge Company.

In this type of bascule bridge the counterweight is suspended from a trunnion located at the apex of a triangular-shaped counterweight tower. The linkage mechanism by

which this counterweight is connected to the bridge span is a novel part of the design, giving to the contra-rotating counterweight the same angular velocity as the span. Expressed in other words, this means that the angle between the horizontal (or vertical) and the line connecting the pivot with the center of gravity of the counterweight is always identical with the angle between the horizontal and a line connecting the main trunnion with the center of gravity of the leaf. One of the links acts as a strut supporting the counterweight while its fellow is a tension member connecting it to the movable leaf.

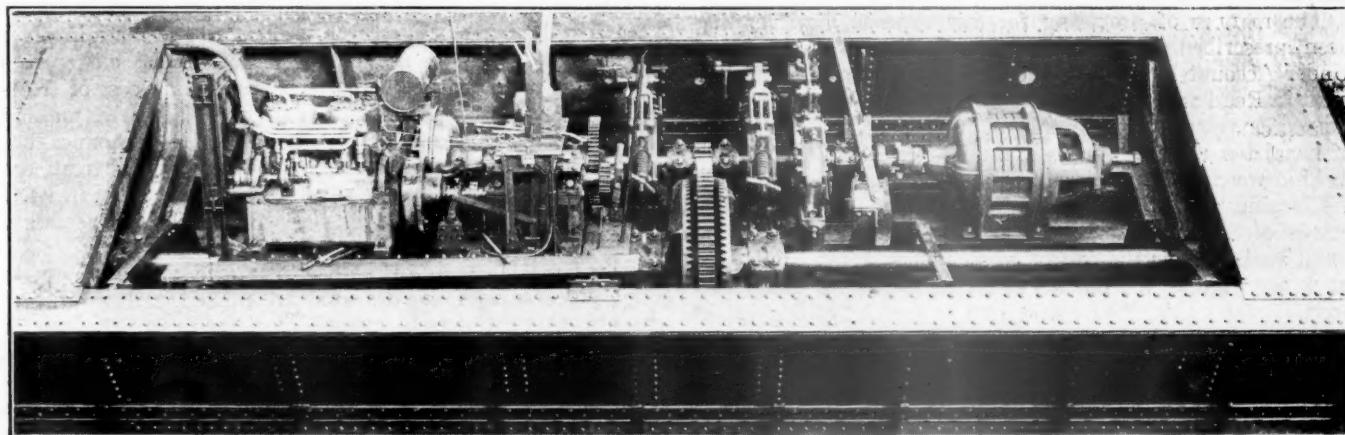
The counterweight consists of a basket of structural steel filled with concrete and suspended from the counterweight trunnion by stiff hangers. This basket is enclosed on all sides, except on the side toward the pivot. This form of construction has the advantage, therefore, that it may be erected in the hanging position by a locomotive crane without

entirely independent of the brakes to the motor shaft. All the brakes have been designed to set slowly and to release quickly.

The air for the brakes is supplied by a compressor rated at 25 cu. ft. of free air per minute, with a governor to insure uniform pressure. The bridge is operated by remote control from an operating house located south of the bridge, which also contains the interlocking machine.

The masonry supporting the A-frame and main trunnion consists of four cylinders 12 ft. in diameter sunk to rock by the pneumatic process and connected crosswise of the bridge by a pier and abutment resting on the cylinders. The rest pier is of concrete extending below the bed of the river and supported on piles driven to rock.

The new structure was erected in the open position so as to clear the old swing span. When the new structure was ready for service, operation of trains across the bridge was



The Operating Machinery Assembled in the Machinery Girder

the use of any falsework. Also the necessary concrete may be poured inside the structural steel basket without the aid of any forms.

The bridge is operated by machinery mounted on a cross girder of structural steel which travels up and down two inclined members equipped with racks. This cross girder is joined to the compression and tension links at their common pivot.

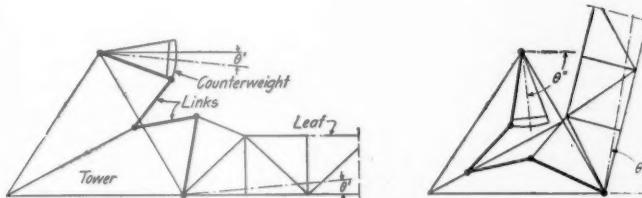
The machinery required for operation was assembled complete inside the girder at the shop and subjected to tests before shipping it to the site of the bridge. This arrangement greatly reduced the amount of assembly work necessary at the bridge site.

The main power equipment of this bridge comprises two 100-hp. electric motors operating on three-phase, 60-cycle, 440-volt alternating current. Either of these motors is capable of operating the bridge alone and is connected to the operating shaft by separate clutches, the object being to use these motors alternately, thereby giving greater assurance that one motor will always be in working order. To allow for failure of electrical power, a 58-hp. gasoline engine is provided as an auxiliary unit. The power equipment has been geared so that either of the motors will open or close the bridge in less than $1\frac{1}{2}$ minutes and the gas engine in about eight minutes.

Each electric motor has a solenoid brake for full torque, one of these brakes having an attachment to transform it to a hand brake if the gasoline engine is to be used. On the motor shaft an air brake has been installed for full torque of the two motors; also two emergency brakes entirely independent of the machinery, arranged to grip I-beams attached to the inclined girder. These brakes can develop 175,000 lb. holding power and are supplied with air from a line

abandoned for a period of about eight hours during which the old span was shifted sidewise on falsework, the new approach span was erected for one track and the rest pier put in condition to receive the new span which was then placed in the open position. During the time that the bridge was out of service, one or two through passenger trains were detoured over other lines, while service for local passenger trains was maintained by hauling passengers between Detroit and the site of the bridge in motor buses.

The bridge was fabricated at the Gary plant of the American Bridge Company with Albert Reichmann, western division engineer, in charge. The erection was under the direc-



Relation of Parts in the Open and Closed Positions of the "Abt Patent" Bascule

tion of James L. deVou, Pittsburgh division erecting manager of the American Bridge Company. The electrical, air and gas engine equipment was furnished and installed by the Norwood-Noonan Company of Chicago. The substructure including all foundation work was done by the J. W. McMurry Contracting Company, Kansas City, Mo., this contractor also removing the old masonry. A new electric interlocking plant is being installed by the Union Switch & Signal Company.

Should the Cost of Treating Ties Be Charged to Maintenance?*

By Earl Stimson

Chief Engineer Maintenance, Baltimore & Ohio

ARAILWAY'S FUNDS can be obtained either from moneys earned or from moneys borrowed. The relative durability of these ways from the railroad standpoint depends upon the degree of prosperity of the road or the state of its credit. If the earnings are large, it is desirable to put a portion back into the property and in what better way can it be returned than to invest in treatment for prolonging the life of ties. If the earnings are low, resort to capitalizing of the excess cost of the ties due to the treatment would be a means of meeting the expense, as the road of low earning power would likely have poor credit and consequently difficulty in securing the necessary funds.

The manner of providing for this expense, however, has been prescribed by the Interstate Commerce Commission. Under Account No. 8—Ties, of the Classification of Investment in Road and Equipment, Issue of 1914—we find in this connection, mention made only of including "the excess cost of metal ties used in repairs of track over the cost to replace in kind wooden ties removed." Under Account No. 212, Ties—Classification of Operating Revenue and Operating Expenses of Steam Roads, Issue of 1914, we find—"This account shall include the cost of cross, switch, bridge and other track ties used in the repairs of tracks." Note B under this account states that, "the excess cost of metal ties applied in the place of wooden ties over the cost at current prices of replacing in kind the wooden ties removed shall be charged to road and equipment account No. 8, Ties."

While no specific mention is made of treated ties, it is plainly evident that the commission does not consider the treatment of ties a "betterment" in the sense in which that word is defined by the commission. Such definition is given as: "Betterments are improvements of existing facilities through the substitution of superior parts for inferior parts retired, such as the substitution of steel-tired wheels for cast wheels under equipment, the application of heavier rail in tracks, and the strengthening of bridges by the substitution of heavier members. The cost chargeable to the accounts of this classification is the excess cost of new parts over the cost at current prices of new parts of the kind retired."

The argument may be put forth that if the substitution of a metal tie for a wooden tie is a betterment, why is not the substitution of a wooden tie which has had the length of its serviceability increased by chemical treatment also a betterment? This may be answered by stating that there is no reason why the treatment should not be classed as a betterment, as the treatment undoubtedly makes the treated tie superior to the untreated tie, as far, at least, as its life as measured by its resistance to decay is concerned. On the other hand, it may be answered that there is sufficient reason why the treatment should not be classed as a betterment. In the case of the metal tie substituted for a wooden tie, there is unquestionably a substitution of a superior part for an inferior part, as the tie is made of a radically different and structurally superior material.

The commission evidently considers a wooden tie as a wooden tie, whether of soft or hard wood—whether untreated or treated. A wooden tie structurally is no better after treatment. It will carry no greater load and will not hold the spikes better. Under severe usage it will resist rail and spike cutting, and other forms of mechanical wear, no better unless specially protected with tie plates and screw spikes at considerable additional expense. Under very severe usage the treated tie is destroyed as quickly as the untreated tie. The

increase in the length of life of the treated tie is the only point upon which its superiority can be based. The same point can be raised in favor of the white oak or long leaf yellow pine tie, substituted for a red oak or short leaf pine tie.

There are many kinds of treatment, varying widely in cost and effectiveness, the effectiveness not always being in direct ratio to the costs. The effectiveness of treatments varies also with the kinds of wood. It is difficult after a few years to identify a tie being removed from the track as a treated or untreated tie, and if the former, the process of treatment used, unless a very elaborate record and method of marking for identification is initiated concurrent with the authority to charge the cost of treating to investment in road, that is to capital account. Otherwise it would be impossible to separate the charges accurately.

The rapid rise in the price of timber has increased the price of the tie in much greater proportion than the cost of treatment has increased. Less expensive treatments that have been found adequate, are being used more and more in place of the more expensive treatments formerly considered necessary. The result has been that the ratio of the cost of treatment to the price of the tie has decreased greatly, making the use of treatment not only show greater economies but also reducing the proportion that the excess cost of treatment bears to the total cost of the treated tie. This should in itself stimulate the use of treated ties and not make necessary resorting to the doubtful expedient of capitalizing.

The steady increase of the use of treated ties, until now a large percentage of the ties used are treated, rather nullifies the idea that the present method of charging out the cost of treatment to maintenance is preventing a more liberal use of treated ties. Nor does it appear that charging to investment in road—that is capitalizing—the excess cost of the metal tie has brought about the extensive use of that tie, or made it even a competitor of the treated tie. Millions of treated ties are used to thousands of metal ties.

The writer has treated this subject not from the standpoint of the accountant or the financier, but rather from that of the maintenance engineer. He has cheerfully taken into his maintenance costs the expense of treating some 12,000,000 ties to date. He is even now reaping to no inconsiderable extent the full benefits of the price paid. He is not and will not be compelled throughout all time to give up some portion of those benefits in the payment of interest charges, or in other words, to pay tribute to capitalizing. The writer favors the present practice of charging the cost of treating ties to maintenance.



Photo by Underwood & Underwood

A Scene in Trieste

*From a paper read before the annual convention of the American Wood Preservers Association at Chicago on January 26.

Further Testimony on Merits of Form 19 Order

The Conscientious Dispatcher—Views of a Dozen Competent,
Experienced Observers—Money Saved

By Edgar W. Weston
Inspector of Train Dispatching, Northern Pacific Railway

WHEN I WROTE the article which was published on December 3 about Form 19, I had not seen Mr. Forman's letter in the *Railway Age* of October 8, or Mr. Nichols' in the issue of October 15. I cannot bring myself to agree that dispatchers should be allowed to instruct operators to clear the order signal so that trains for which there are no orders may pass. Decidedly, it would be a violation of the rules and should not be countenanced.

Now, allow me to put myself in the position of what Mr. Nichols calls the "over-zealous train dispatcher." He will say, no doubt, that when I conceded two occasions where signatures should be required I was trying to hedge. I am inclined to take the position that in even those two cases a plan can be devised which will insure delivery of a 19 form, and the train dispatcher be assured of the fact, without taking signatures. For the present, however, let it go, with the understanding that when delivered at a non-telegraph office restricting orders must be signed; also when the train has already passed the train order signal.

The train dispatcher is never immune from responsibility for the delivery of a train order. Where Form 19 with a clearance is used the dispatcher must know that all orders for the train are included when the operator gives him the order numbers and he approves them. If he does not use the same care in this that he does in recording and checking the signatures given him for 31 orders, he is not a reliable dispatcher. The unreliable train dispatcher, when he has a 31 order out for a train that he is anxious to keep moving, will say to the operator: "Conductor Jones is on No. 51. Sign up and keep them going." Thus he encourages and expects the operator to violate rules by signing the conductor's name, securing "complete" and handing it up to the passing train as if it were Form 19.

As to the work extra between B and D, which the dispatcher wants to have protect itself against an extra after a specified time, he surely will not put out either a 31 or a 19 restricting order for the work extra if the train is so situated that delivery of the order is uncertain. When the work extra comes to a point where an order can be delivered and the delivery is accomplished why is not Form 19 just as safe? Until then the extra will not, of course, be permitted to enter the work extra's limits, no matter which form of order is used. The same is true when it is desired to annul the work order of the work extra.

There is no argument for Form 31 in the two paragraphs where Mr. Nichols calls attention to reducing a time order and giving an extra right over all trains. As the train dispatcher must know that the restricting order is delivered, be it Form 31 or Form 19, before allowing the inferior train to enter the restricted territory, why insist upon Form 31 when the dispatcher is more certain of delivery by using Form 19 and a clearance?

If a restricting order, Form 19, is out for delivery, at the point of restriction, the rules require that the train order signal be displayed at "stop." If the engineman should pass this signal without stopping, or the operator hand up the restricting order before the train is stopped both violate a rule, and give evidence of a lack of proper supervision. Thus far, have I hedged, or clouded the issue?

Surely, Mr. Nichols will not accuse superintendents of being over-zealous when they advocate the exclusive use of Form 19 or say that it is because they wish to lessen their own responsibility. I believe he will admit that it is because they want to improve operating conditions. Let me quote expressions from a number of superintendents as to what they think after nine years' experience. Not all of these superintendents are ex-train dispatchers.

Views of Northern Pacific Superintendents

A—"The use of Form 19 for restricting the rights of trains has been in use about 10 years, and I cannot recall an instance of where hazard could be charged to such use. This use is a great help in keeping trains moving, especially in extremely cold weather. When Form 31 was used for restricting rights, it was nothing unusual during the winter months to have trains freeze up before getting started again."

B—"To use Form 31 on this division would mean more expensive operation in loss of time, more fuel consumed, and in cold weather many tie-ups, because of the 16-hour law. As a safety proposition, I believe the 19 order is fully as safe as the 31."

C—"I do not know of any case where hazard has been created that could be chargeable to the use of the 19 order. The greater hazard is with the 31 order. There have been more cases of trains leaving stations without their orders where the 31 is used. The delay incident to the use of Form 31 is not tolerable; it means stopping trains and waiting for conductor to sign the order, dispatcher to complete it after signature is transmitted, then clearing the train."

D—"I do not recall any instance where hazards could be charged to the 19 order. By using this form we do away with the stopping of trains, thereby eliminating the chances of breaking in two, and expedite movement by not requiring them to stop."

E—"The strongest argument in favor of the use of Form 19 is the saving of time and expense caused by stopping trains to sign restricting orders. I believe that we could not handle the same volume of business using Form 31. I do not remember a hazard chargeable to Form 19 being used in this manner."

F—"I do not recall any hazard chargeable to the 19 order. After a good many years' experience with Forms 31 and 19, I wish to go on record as saying for all purposes Form 19 has proved its worth as a time and fuel saver. Its abuse has only been caused by excessive speed and failure on the part of certain employees to confine themselves to rules in connection with the operation of train order signals at the caution position."

G—"There has been no instance in my recollection where a hazard of accident has been created, because we use the Form 19 in place of the 31. There would be a very considerable increase in the time of men on duty if we used the 31 form, because it means the stopping of long freight trains for the conductor to sign the order and then take it to the engineer for delivery."

H—"I cannot recall any case where a hazard or near hazard could be attributed to the use of Form 19. It is not good practice to stop a 99-car train and expect the conductor to walk from the rear to the station and sign a 31 train order, when the same result can be obtained by the use of a Form 19 with equal safety."

I—"I have never felt that a train order signal is any more effective when displayed for a 31 order than when displayed for a 19 order. To go back to the 31 order would mean expensive long delays to our freight trains. I do not know of any hazard that has occurred from the use of Form 19 as we are now using it."

J—"It seems to me the best argument for the 19 order is the fact that we have safely operated for a good many years with it. I do not know of any hazards under the 19 order, except those which are due to conductors and engine men overlooking or forgetting their orders. It seems to me that they will forget a 31 as quickly as a 19."

K—"Since we began using Form 19 orders, I know of no hazards that can be charged to this form. It is certainly a great time saver in getting trains over the road, particularly our long freight trains. We are handling many freight trains of from 90 to 99 cars, and if these trains were required to stop with the engine at the train order signal and the conductor required to walk 99 car lengths from the caboose to the office to sign a 31 train order, it would cause a delay of from 15 to 30 minutes to such trains, and would cause congestion on a busy piece of single track."

If the train dispatcher is obliged to use Form 31, he will endeavor to avoid extra stops by placing the order where the train stops for coal or water or makes regular station stops. If, in doing this, he has the order delivered too long a time before it is to be executed the chance of a hazard

is increased, because the conductor or the engineman is more likely to overlook an important part of the order than if it were placed close to the point of execution. Of course neither form of order should be condemned because someone forgets or disobeys the rule, but the form that will reduce the chance for hazard should be used.

Where Form 31 was used two hazards occurred which anyone must admit would probably have been avoided had Form 19 been used. A schedule order on Form 31 is addressed to No. 20 at G—. The conductor comes to the telegraph office, signs the order, then goes outside, intending to return for the order when it is completed. For some reason he forgets it, gives the engineman the signal to go and the train leaves, both conductor and engineman overlooking the train order signal at "stop."

In another case a meet order is put out on Form 31 to No. 870 at B—. The train passes the order signal at "stop" to do some station switching. As soon as the switching is finished, No. 870 pulls out without the conductor's having returned to the telegraph office to sign and receive the completed Form 31 meet order. In both cases had the restricting orders been on Form 19 instead of Form 31 the operator would have been out on the platform and would have delivered the orders when the train passed the telegraph office.

The Superintendents' Experiences

As giving a little more reality to the quotations which I have made from the statements of our superintendents I may be permitted to comment briefly on the locations and circumstances which constitute the background of their utterances. The paragraphs are lettered to correspond with the quotations.

A—When this superintendent was a dispatcher it was considered that Form 31 was the only safe order to use in restricting rights. His division has 203 miles of main line and 117 miles of branches, with a traffic movement characteristic of a trunk line leading out of a large city.

B—This superintendent was a train dispatcher when only Form 31 was used for restricting purposes. His division has 360 miles of main line and 112 miles of branches. There are two dispatching districts, and during portions of the year the main line traffic is very dense. Through the winter months there is plenty of snow and severe cold weather to contend with.

C—This division has 100 miles of main line, parts of it double track because of dense traffic, and 271 miles of branches. Train movement on both main line and branches is particularly heavy during the months when grain is moving. The superintendent is neither an ex-train dispatcher nor a conductor.

D—This is another division with its mileage in the northwest wheat region which provides very heavy traffic while the wheat is moving, in addition to the usual through traffic. There are 106 miles of main line and 671 miles of branches. The superintendent is a former train dispatcher of more than ordinary ability.

E—This is from a former train dispatcher, now superintendent of a heavy mountain division where only the very best and safest methods of operation should be used. It has 346 miles of main line and 327 miles of branches.

F—This comes from the superintendent of another heavy division in the Rocky Mountains, 334 miles of main line and 223 miles of branches. He has never been a train dispatcher or conductor, but his experience makes him competent to say what is safe operation for any division.

G—This is a division of 203 miles of main line and 384 miles of branches, with heavy traffic on all of it. The superintendent has had experience as a train dispatcher and as conductor.

H—This division has 303 miles of main line and 373 miles of branches, and in addition to taking care of a heavy through traffic, is in the heaviest fruit and wheat region of the west. The superintendent is a former conductor of many years' experience.

I—The division is 217 miles of main line and 148 miles of branches leading two ways out of a large coast city and over the Cascade Mountains. The superintendent has had wide experience as a train dispatcher and in other capacities on both mountain and prairie divisions.

J—The division has 440 miles of main line and 80 miles of branches through a portion of the Northwest where the physical and varied weather conditions frequently make operation difficult. This man has never been a train dispatcher.

K—This is a division with 488 miles of branches, and 103 miles of main line, double track and dense traffic. The superintendent is a former train dispatcher, and served on the committee that formulated our present book of rules.

Value of Time Savings With Freight Trains

I think I have proved the safety of using Form 19 for restricting the rights of trains. What more does it mean

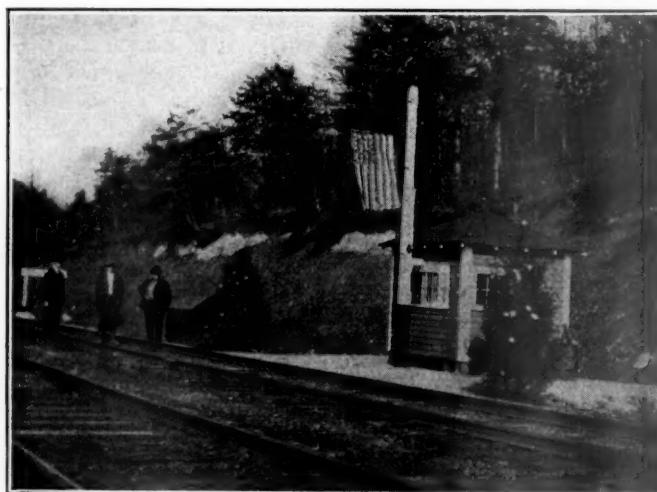
to a busy division? I recall a division 140 miles in length where westward freight trains are unavoidably delayed from two to four hours from the time the crew is on duty until departure from the terminal. As a result in the winter months the margin for reaching the farther terminal inside the 16-hour limit is very small. If the average daily number of these trains were 15 (and frequently it is many more), and we had to use Form 31 instead of Form 19, a train making a trip over the division would ordinarily be stopped not less than five times on purpose to sign an order. Each stop would result in a delay of 30 minutes or more—a total delay of two hours and thirty minutes to each train. Because of this at least eight of the fifteen trains would have to be tied up before reaching the terminal to avoid violating the 16-hour law.

The reader can figure for himself what this means in additional expense to the eight trains, as well as the cost of overtime imposed on the other seven trains that were able to scratch into the terminal within the 16-hour limit. On other divisions the average number of tie-ups is not likely to be so great, but on 12 divisions I believe there would average for three months of the year two tie-ups or their equivalents, sending out relief crews, the daily unnecessary expense of 24 trains delayed and tied up because of using Form 31.

A careful check made for three days on four divisions gives the information that, had they been using Form 31, 20 trains on each division every 24 hours would have made otherwise unnecessary stops. Five such unnecessary stops for each train would be a fair average over the division. Thus, the use of the 31 order on these divisions would result in 100 unnecessary stops per day on each division. A train so stopped consumes, in getting under way again, from 800 lb. to 1,500 lb. of additional coal. If we say the average per train for each stop is 900 lb., we should have a total of 45 tons for each division; or for 12 divisions 540 tons of additional coal consumed daily.

If the average cost of the coal is \$4.66 a ton placed on the dock it means the tidy sum of \$2,516 spent daily without an adequate return.

MEDICINE HAT, ALBERTA, makes flour, and its mills report that they have shipped 1,760 tons of flour to Europe, which is moving via Vancouver and the Panama Canal. They have yet to ship by that route 2,498 tons. The mills have also shipped 80 tons of flour to China and expect to send 300 tons more. Medicine Hat is 818 miles east of Vancouver.



Southern Railway Block Signal Station, Copper, Virginia

The I. C. C. General Rate Investigation

Frank J. Warne Testifies for Railroad Labor Organizations— Additional Testimony on Behalf of Shippers

FRANK J. WARNE testified before the Interstate Commerce Commission at the rate hearing on February 10 and 11 as an economist representing the railroad labor organizations. He was introduced by Glenn E. Plumb, who acted as his counsel, and read a list of 17 organizations on whose behalf he said he appeared, without calling attention to the fact that the Brotherhood of Railroad Trainmen was not included. The commission had set aside two days for testimony on behalf of the labor organizations, and as Mr. Warne was the only witness he received the full time.

Mr. Warne stated that the employees did not appear to advocate either a reduction or an increase in transportation rates. With rates as rates the employees are not concerned, he said. "They do not believe their wages should be affected whatever the decision of this commission. They believe there is no economic law that establishes any relation whatsoever between rates as such for transportation and rates of wages for services performed."

Mr. Warne submitted as exhibits numerous charts and statistical tables such as he had used in his more protracted testimony recently before the Senate committee, but he found the commissioners somewhat more critical of his peculiar methods of handling statistics than were most of the senators. The questions asked and the expressions on the faces of the commissioners indicated amazement and at times amusement at some of the claims made by the witness. Frequently he replied to demands for explanations by promising to come to that point "later." His statistics and charts proved, he said, that in 1920 operating revenues increased by a much greater amount each month from May to September than did compensation to employees, notwithstanding there was no change in the transportation rate although the rates of wages were increased. From October to the close of the year, he claimed, operating revenues decreased notwithstanding a large increase in the rates, while total compensation to employees decreased due to a less number being employed. He also showed how operating revenues decrease in one period compared with another, although the transportation rate remains the same.

The railway employees' participation in the present rate case, Warne said, was due to the claim of railway executives, "in alliance with large corporation shippers," that a wage reduction must precede a rate reduction. He quoted from Senator La Follette's speech in the Senate last December regarding the alleged agreement between certain representatives of the railroads on the one side, and steel, coal, lumber and other producing and manufacturing interests and farm organizations on the other. This understanding between these interests, the speech said, provided for a reduction in the wages of railway employees. It was to oppose and to prevent, if possible, "such an uneconomic solution of the railroad situation" that the employees appeared before the commission, the witness said.

Commission Wants Facts

If the agreement resulted in a reduction in the wages of railway employees, Warne claimed, the economics of railway operation were such that there could very easily result, and under conditions of early future increases in volume of traffic there would likely result such an increase in total operating revenues as to cause the reduced rate to produce an even larger total operating revenue than resulted from the higher rate. So that at the same time they claimed credit for the

WASHINGTON, D. C.

reduction in the transportation rate, the railroad corporations would actually be receiving larger revenues, while the employees were receiving the lower wages.

When Mr. Warne read from a newspaper story quoted by La Follette, saying that the railroads and the shippers at the meeting on December 9 had agreed to "bury the hatchet;" Commissioner Aitchison asked if he thought the present proceedings bear out that statement, and Commissioner Hall interrupted to say that so far as the commission is concerned the witness might dispense with newspaper articles and Senate speeches. "We want facts," he said, "and you may confine yourself to what you know of your own knowledge."

Mr. Warne said he was trying to establish the fact that the railroads and shippers have agreed to try to reduce wages. "Is this commission not interested in agreements made outside affecting rates and wages?" he said. "If you were present or have authentic copies of the agreements or the minutes you can present them," said Mr. Hall, "but this commission will not be swayed by speeches and newspaper articles." Mr. Warne then omitted further reference to Senator La Follette's speech.

Mr. Warne attempted to explain the increased proportion of the wage bill to total operating expenses by saying that the greater part of the cost of utilizing a greater percentage of the capacity of the railroad plant is naturally labor cost. He presented a chart which showed a sharp increase in the operating expenses other than compensation about August, 1920, which he explained by saying it was due to the fact that August was the last month in which the railroads could get in their estimates of expenditures before the close of the guaranty period.

Commissioner Aitchison asked if the cost of moving trains of empty cars under the commission's emergency car service orders of 1920 did not have something to do with it, and whether the railroad plant was not so overloaded at that time the law of decreasing returns was in operation. He also cited the large increase in the cost of railroad fuel at that time, particularly in the case of railroads which had to purchase coal outside of their contracts during a runaway market. Mr. Warne preferred to believe that the railroads were crowding all possible expenses into the guaranty period, although he said he was not "questioning the motives" of the railroad managers.

Commissioner Esch asked the witness if he thought the railroads had put in an overestimate of their expense in the face of the provision of the law that required the commission to police the accounts and to readjust them if necessary in order to safeguard the treasury against the possibility of just what Mr. Warne had expressed. Mr. Warne replied that the reports were made by the roads in self-protection; they probably knew the amounts would be cut down, but they knew they would not be increased above their figures.

Discussing the proportion of each dollar of operating revenue that goes to labor Warne said that an increase in this is entirely consistent with an increase in the amount going to investment. For illustration he stated that "in 1915 labor received 41.5 cents out of every dollar of revenue, and in 1913 it received 43.1 cents out of each dollar. But in the latter year, with labor receiving 1.6 cents more out of every dollar than in 1915, there went to investment 104,515,602 more dollars in 1913 than in 1915."

"Widely published figures of railway executives give the proportions going to investment in 1920 as 1 cent out of each

dollar. The inclusion of the amount of the standard return increases this more than elevenfold—to 11.4 cents. For 1919 investment received 16.2 cents out of every dollar, instead of 8.8 cents, and in 1918 the amount going to investment out of each dollar was 17.6 and not 13.1 cents.

"The 11.4 cents out of every dollar that in 1920 went to investment, a relatively low return compared with 1919 and 1918 because of much greater maintenance expenditures in 1920 out of revenue, is equal to 105,528,216 more dollars than the 23.8 cents out of every dollar in 1915; it is \$127,614,902 more than the 21.8 cents going to investment in 1914; it is even greater in total amount by \$80,148,666 than the 25.2 cents received by investment in 1912.

"The 16.2 cents in 1919 and the 17.6 in 1918 received by investment out of every dollar are \$223,419,659 more than the 23.8 cents in 1915. They are \$245,506,345 more than the 21.8 cents in 1914; \$188,040,109 more than the 25.2 cents in 1912. They are only \$78,348,467 less than the 29.1 cents in 1916, this latter standing for the largest proportion out of each dollar received by investment in any one of these years from 1912 to 1920.

"With labor receiving 53.6 cents out of every dollar in 1920, the largest proportion in any one of these nine years, there went to investment a much larger sum, not taking into consideration the large income to capital through excessive maintenance, than in either 1915, when labor received only 41.5 cents, or in 1914, when it was paid 44.1 cents, or in 1912, when the proportion of each dollar was 43.1 cents."

Criticising the statistical testimony presented by railway witnesses as to the rate of return on capital, Warne charged that the figures of their property investment account were very greatly inflated—that the amount of capital invested was considerably less than that upon which the roads claimed they should receive a return in interest and dividends. He also charged that the net operating income statistics of the railway witnesses were "highly deflated," particularly during the years of federal control.

Warne "Proves" the Rates Have

Increased More Than Wages

Mr. Warne produced a complicated series of statistics, estimates and assumptions on which he based the assertion that the average increase in freight rates from 1913 to 1921 was 113 per cent. "If this increase be applied to the total freight operating revenues for Class I carriers for 1913, the increase in freight revenue due to the 113 per cent increase would be \$2,420,434,318. The same percentage increase applied to the tons moved one mile for the calendar year 1920 shows freight revenue on Class I roads to have been increased \$3,341,205,503, assuming the same earnings per ton-mile as those of 1913." He did not say what the actual increase in earnings was, but after another calculation to show that the rate reductions made since 1920 amount to a very small percentage, he proceeded to contrast the freight rate increase with the increase in employees' wages.

First he quoted from a statement of the Railroad Labor Board to the effect that "from August, 1914, to December, 1917, the wage of railroad employees remained substantially unaltered." Then he referred to the increases made during federal control and by the Railroad Labor Board in 1920, and the reduction in 1921, but, he declared: "When an attempt is made to ascertain the per cent increase in the rate of wages of railroad employees from 1914 to 1921 almost insurmountable obstacles are encountered, partly owing to the innumerable classes of employees, changes in rules and conditions of employment which resulted in increases in pay, and also in large part to the absence of basic statistical data in the reports to the commission by the railroads of compensation and number of employees and so on."

In reply to questions by Commissioner Hall, Mr. Warne said no one could estimate how much the wage increase

made by General Order No. 27 of the Railroad Administration would amount to and he would not attempt to estimate it within a hundred million dollars. However, he said, the "highest estimate of the total percentage increase in wages from 1916 to 1920 for the entire country" that he had seen was stated as being 84.6 per cent in the testimony of J. G. Walber before the Senate committee. This estimate, he said, was for the engine and train service class of employees and was based upon "the inadequate statistics reported by the carriers to the Interstate Commerce Commission and also upon the inaccurate average annual compensation per employee."

Accepting for comparative purposes "even this exaggerated estimate," Mr. Warne found it to be the fact that the percentage increase in the rate of wages has been less than the 113 per cent increase in the freight rate, and "as the same percentage increase in wages is equal in amount of dollars to only one-half that of freight rates, it is clear that freight rates advances have been very much greater than wage increases over the same period. Freight rates alone have increased in amounts of dollars since 1914 from two to three times the increases in wages of employees."

"How do you get that?" asked Commissioner Hall. "You said you couldn't estimate the wage increase within a hundred million dollars; now are you going to give it?" Mr. Warne explained all over again that it was impossible to give the wage increase, but that he had used Mr. Walber's percentage for train and enginemen to measure it, and that a given percentage of increase in wages is only about half as much in dollars as the same percentage applied to the payroll. "Do you see my point?" he asked.

"Yes, I see your point," replied Mr. Hall, "but it isn't so."

"Most assuredly these comparative percentage increases, and the increases in dollars since 1914, of freight rates on the one hand and wages on the other, justify the statement, as representative of the facts, that there can now be a considerable reduction in transportation rates without any decrease in the wages of railway employees." Mr. Warne continued: "Notwithstanding the long-deferred and quite moderate increases in wages granted the railway employees during and following federal control, part of which increases was taken away again in the July, 1921, wage award of the Railroad Labor Board, the great majority of employees on the railroads today are not receiving a wage sufficient to support themselves and their families in decency and comfort to the extent demanded of them by our democratic form of society with its republican institutions. Not only is this true in the face of intermittent employment and in many cases of complete unemployment, their present wage does not meet even their absolutely necessary fixed charges for food, clothing and shelter."

Increases in Payroll Due to

Other Factors Than Wage Rates

Mr. Warne then proceeded to demonstrate that the railroads have overstated the increase in wages by \$1,250,000,000. He enumerated 11 different items, among which were the inclusion of officers' salaries and employees whose compensation is chargeable to capital account, the increased number of employees on account of increases in business, overtime payments, etc., which he said do not represent increases in wages. He replied in the affirmative, however, when Commissioner Hall asked if the money was not all paid by the railroads and paid to the wage earners. Upon further questioning Mr. Warne gave figures for the amount of most of the 11 items, which, however, footed up some \$300,000,000 short of the billion and a quarter he had given as the total. He said some of the remaining items had been estimated and promised to file the working sheets later.

Mr. Warne was cross-examined briefly by F. H. Wood.

commerce counsel of the Southern Pacific, who said he would rather curtail the cross-examination than the witness' statement if he had anything more to say. Referring to Mr. Warne's attack upon the property investment accounts of the railroads on the ground that they were largely swollen by investments in affiliated companies, Mr. Wood asked M. O. Lorenz, director of the commission's Bureau of Statistics, to give the numbers of the accounts which are included in the commission's report of property investment. He then had Mr. Warne read the description of these accounts from the commission's report form to show that the investments in affiliated companies are not included.

Mr. Warne had also testified that the railroads had overestimated their back wage payments in 1920 and had charged \$146,000,000 to their monthly expenses on this account, whereas the commission's quarterly report of compensation showed only \$102,000,000 of back pay. Mr. Wood showed after numerous questions that the \$102,000,000 applied only to the second quarter of 1920 and that the remaining \$44,000,000 was not shown in the third quarterly report as back pay because it was paid during August and September for service during July and August and was, therefore, not back pay with reference to that quarter.

Mr. Wood asked Mr. Warne if he would agree with the statement he had quoted from the Labor Board that wages were substantially unaltered from August, 1914, to December, 1917. Mr. Warne said it was true so far as "any flat out and out increases" were concerned, although there were some increases "for competitive reasons." Mr. Wood then asked the witness to read from a statement showing the average compensation per employee in 1914, 1915, 1916 and 1917. Mr. Warne declined to do this without giving an explanation of the "absolute inaccuracy" of the average annual compensation and said he had not sufficient time to make the explanation. He did say, however, that the commission's statistics are "worthless" on that point because the total compensation for a year includes payments to many men who were not in service at the time the count of employees was made. For this reason, he said, it is impossible to get any reliable comparison of the earnings in various years. Mr. Wood asked if other classes of employees had not received much larger increases than the percentage quoted from Mr. Walber which he had used. Mr. Warne said he was not able to answer.

Mr. Wood also referred to an exhibit headed "Increase in Mileage Constructed," which the witness had used in reply to statements by railroad officers that new construction has fallen off. This showed an increase of 27,000 miles of line from 1908 to 1919. Mr. Warne said this had been taken from a table in the commission's annual report, but on being handed a copy of the table, he said it had been taken from the figures of operated mileage, which includes trackage rights, instead of from the column of "miles owned," which showed an increase of only 19,000 miles, most of which was in the early part of the period. When Mr. Wood asked why he had not used the miles owned, Mr. Warne said his clerk had probably made the mistake.

Hay Shippers Ask Rate Reduction

Testimony of shippers of hay, grain and seeds was heard on February 9. W. I. Bates, president of the National Hay Association, expressed appreciation of the recent 10 per cent reduction and said it had tended to stimulate the traffic to some extent, but not enough to make it worth while for the farmers to continue to produce hay. It is practically impossible to get the commodity to market, he said, if the grower is to receive a fair price, and the high rates have localized the market so that shipments were reduced from 8,000,000 tons in 1920 to 5,000,000 in 1921. He asked the removal of the entire increase made in Ex Parte 74.

When Commissioner Aitchison asked if the real compe-

titor of the hay producer is not the Ford company, Mr. Bates replied that the animal population of the country has increased. The commissioners, however, questioned the witness closely as to just how a reduction in rates would benefit the hay producer and as to how much farther hay might be shipped to market. He had no figures on this point. He said that the benefit of the 10 per cent reduction had been given to the consumer and had probably increased the demand for hay 50 per cent, but he was somewhat hazy as to whether a further reduction in rates would go to the farmer, the distributor or the consumer.

Commissioner Hall pointed out that the animals have not stopped eating hay and asked if the effect of the increase had not been to increase the local market for hay while reducing the long haul shipments. Mr. Bates said that the animals have not been so well fed and that the members of his association had indicated their belief that a reduction in rates would help them. On cross-examination it was brought out that as only 35 per cent of the members are producers the vote may have been carried by the jobbers and distributors.

The hearing was resumed on February 15 with shippers of canned goods and wholesale groceries as the principal witnesses. James Moore, president of the National Canners' Association, said the canning industry is in a desperate condition and needs any reduction in rates that can fairly be allowed. He said the relief extended to agricultural products should be extended to canned goods.

Non-Union Mines Could Produce

6,000,000 Tons of Coal a Week

J. D. A. Morrow, vice-president of the National Coal Association, filed a number of supplemental exhibits giving information that had been asked at the time of his testimony, relating mainly to the costs of coal production and wages. One of his exhibits was a table comparing the production capacity of the union and non-union coal districts, which is of especial interest in view of the threats of a coal strike. This showed a capacity for the non-union fields of 5,676,000 tons a week, or 38 per cent of the total capacity. Mr. Morrow estimated that the total capacity of the bituminous coal mines in the United States is 776,000,000 tons, or 14,930,000 a week, of which 481,000,000 tons were assigned to the union fields and 295,000,000 to the non-union fields. According to these figures, in the event of a strike it would be possible to produce about two-thirds as much coal per week as the present average. Discussing the possibilities in the case of a strike, Mr. Morrow said:

"This estimate of capacity is based upon actual productive performance in each district in the United States in 1918, according to the reports to the United States Fuel Administration and the United States Geological Survey. After the first three months of 1918 the bituminous coal mines had a fairly full car supply. In the event of a strike April 1, current business conditions would permit the railroads to give the non-union mines a full car supply, thereby permitting maximum shipments of coal, if railroad operation is not disorganized. The capacity of the bituminous mines of the United States has increased somewhat since 1918. Therefore, the estimate of capacity shown here, based upon 1918 performance, is considered conservative and well within what the bituminous coal mines can do, given full car supply and no interference with production and shipments."

"With a full car supply and no interference with production by the non-union mines in the event of a strike on April 1, the output of the non-union mines will materially increase as additions are made to their working forces and the demand for coal stimulates production."

"From the figures shown above it appears that the present capacity of the non-union bituminous coal mines is nearly 6,000,000 tons per week. Current consumption of bituminous

coal in the United States is apparently somewhat in excess of 7,500,000 tons per week. With a material decrease in the consumption of bituminous coal as domestic fuel and decreased consumption by other users as warm weather approaches, if there is no increase in industrial activity which would necessitate a greater use of bituminous coal, the necessary current consumption after April 1 will approximate 7,000,000 tons a week against the present productive capacity of 6,000,000 tons of the non-union mines. According to the report of the United States Geological Survey, the total stocks of bituminous coal in the hands of consumers January 1, 1922, approximated 47,000,000 tons, an average of 41 days' supply. At the anthracite mines about 2,500,000 tons of steam sizes are in stock awaiting shipment. It appears probable that many important users of bituminous coal are increasing their stocks in anticipation of the suspension of mining in many fields on April 1.

"If consumers further increase their stocks by April 1, and if the potential production of about 6,000,000 tons per week can be obtained from the non-union mines without interference, such shipments, supplementing the stocks referred to, would maintain the United States for several months without serious inconvenience to consumers, even if strikes stopped production in all union bituminous fields, and if the weekly output of a million tons of steam sizes of anthracite was cut off."

One of the exhibits was a table showing the distribution of the cost of production of bituminous coal of \$2.91 a ton. Of this, \$1.97, or 67 per cent, was assigned to labor.

J. B. Newman testified on behalf of the National Wholesale Grocers' Association to urge a reduction in the rates on the commodities which members of his association handle. He said that if a reduction of rates should reduce the net income of the railroads below a point necessary to pay interest they should pay it out of their surplus which has been accumulated for the purpose of providing for lean years. Commissioner Hall said that the witness spoke as if this surplus were in funds that could be used for that purpose. He replied that he understood the roads had a billion dollars and a half in funds out of a total of three billion.

Senator La Follette on Railway Wages

WASHINGTON, D. C.

SENATOR LA FOLLETTE began in the Senate on February 10 the first instalment of a speech he has been promising for some time on "The Truth About the Wages of Railway Employees." He said he would prove that the nominal increase in wages has been uniformly less than the increase in the cost of living each year during the war and since the war that, therefore, has followed and not preceded the increase in the cost of living. After some general comparisons of union wage rates and cost of living statistics he declared that railway labor "is receiving substantially no more real wages in terms of commodity values for services rendered than it received 20 years ago."

On the same day the Interstate Commerce Commission had declined to receive as evidence in its rate hearings quotations from a previous speech by Senator La Follette offered by Frank J. Warne, a witness for the railroad labor organizations, but Senator La Follette quoted extensively from Mr. Warne's statements before the Senate committee. Whereas Mr. Warne in testifying before the commission had insisted that it is impossible to compare the wages of railroad employees from year to year on the basis of the Interstate Commerce Commission statistics, which he called "worthless," Senator La Follette said he would use the figures as reported by the roads to the commission because, although they are "very unreliable," the advantage is all on the side of the railroads.

"Faulty as they are," he had compiled from these reports tables comparing the average annual earnings of railway employees as a whole and by classes with the cost of living index from 1900 to 1921. He admitted that there were no figures available on living cost prior to 1913 but he had used an index figure for food prices for the years prior to that. His tables showed an increase in the average earnings of railroad employees from \$567 in 1900 to \$1,790 in 1921 based on the average earnings of the first half of the year multiplied by two, and \$1,575 based on the earnings for the last half of the year after the reduction by the Labor Board on July 1, multiplied by two.

His cost of living figure showed an increase from 100 in 1900 to 270 for the first half of 1921 and 264 for the last half, while the index figure for wages of all employees rose to 316 in the first half and 278 in the last half. In the case of the engineers, 246 for the first half and 227 for the last half, and the conductors, 263 and 239, the increase was less than the increase in the cost of living index but for the other classes of employees given the increase was considerably greater than the increase in the cost of living. For firemen, trainmen, machinists, trackmen and telegraphers the figures for the first half of 1921 were 318, 336, 315, 345 and 311, respectively, as against 270 for the cost of living. For the second half of 1921 they were 286, 299, 286, 289 and 270 as against 264 for the cost of living.

The Senator made most of his point from these tables by dwelling on the "underpayment" represented by the \$567 average for 1900. Keeping this in mind, he said, the second table "shows us that the railroad workers as a whole, have barely kept pace with the increased cost of living and that the most favored occupations have at the most only made up a small part of the amount by which they were underpaid in pre-war days. The earnings of the engineers and conductors have fallen far behind the increase in the cost of living and they are actually worse off than they were at the beginning of the century."

Senator La Follette then presented another table comparing the buying power of the average earnings per year, using 37 cents as the purchasing power of the dollar during the first half of 1921 and 38 cents during the second half of the year, as compared with 1900. On this basis he gave the purchasing power of all employees as \$662 in the first half of 1921 and \$599 in the second half, as compared with \$567 in 1900. For the engineers and conductors the adjusted figures for 1921 were below those for 1900, but the figures for all other classes showed considerable increases. For the engineers the buying power was \$1,057 in the first half of 1921 and \$999 in the second half, as compared with \$1,161 in 1900. For the firemen it was \$778 and \$719 as compared with \$662. For the conductors it was \$972 and \$909 as compared with \$1,004. For the trainmen it was \$751 and \$687 as compared with \$694. For the machinists it was \$815 and \$758 as compared with \$698. For the trackmen it was \$397 and \$342 as compared with \$311 and for the telegrapher it was \$736 and \$681 as compared with \$644. For all classes except the engineers and conductors the figures for the last half of 1921 also exceeded those for 1913.

This table, the Senator said, presents the actual situation of the railway employees accurately and impressively. "No honest mind can examine these figures without being convinced that the wages of the workers on the railroads cannot be cut, under present conditions, without inflicting a grave injustice upon this splendid body of men."

In another table the buying power of the annual earnings was reduced to percentages. For all employees in the first half of 1921 it was 117 per cent of that for 1900 and for the second half it was 105 per cent. For the second half the percentages were: 86 for engineers, 108 for firemen, 90 for conductors, 113 for trainmen, 108 for machinists, 110 for trackmen and 106 for telegraph operators.

Operating Results Show Savings by Rebuilt Power

Complete Replacement of Locomotives Furnishes Unusual Opportunity for Comparison of Costs

By H. F. Grewe

Master Mechanic, Akron, Canton & Youngstown

THE OPERATING figures of the Akron, Canton & Youngstown for the period of May to September, inclusive, of 1921, when compared with the corresponding five months of the previous year, give some interesting data in connection with locomotive operating costs. A 100 per cent change in road service motive power presents an unusual opportunity to compare the locomotive operating figures of

parison of one class of locomotive with the other, operating data for the period from October, 1920, to April, 1921, have been eliminated from the discussion as during that period charges were made against both classes for repairs and fuel.

Before going into the savings effected, a brief description of the two classes of locomotive is pertinent. The Class E locomotive has a tractive effort of 18,553 lb. and a total weight of 108,000 lb. These locomotives, built in 1896, have



Fig. 1—Old Style Class E Locomotive Used in 1920

an older type locomotive with those of a rebuilt type equipped with superheaters and brick arches.

From March, 1920, until December, 1920, all road tonnage of this carrier was handled with 10 light Mogul locomotives which will hereafter be referred to as the Class E. In December, 1920, a long delayed delivery was made on a

TABLE 2—COMPARATIVE MILEAGES AND EXPENSES,
1920 AND 1921

Date	Loco- motive miles	Train miles	Car miles	Net revenue ton-miles (thousands)	Tons coal	Value \$3.50 ton (dollars)
May, 1920.....	49,029	25,746	270,960	6,295	4,085	14,297
June, 1920.....	40,441	24,352	298,219	4,270	4,832	16,912
July, 1920.....	43,825	24,638	273,139	4,824	3,171	11,099
Aug., 1920.....	45,509	24,094	255,372	3,979	3,369	11,792
Sept., 1920.....	42,113	17,830	239,914	4,259	4,174	14,609
Total	220,917	116,660	1,337,604	23,627	19,631	68,709
May, 1921.....	28,998	17,784	233,421	3,213	1,767	6,184
June, 1921.....	38,372	27,196	285,746	4,140	1,896	6,636
July, 1921.....	38,201	26,586	309,935	4,852	2,072	7,252
Aug., 1921.....	44,125	28,232	389,865	6,164	2,456	8,596
Sept., 1921.....	40,755	26,342	350,451	5,147	2,096	7,336
Total	190,451	126,146	1,569,418	23,516	10,287	36,005
Percentage ...	86.2	126.2	117.3	99.5	52.4	52.4

no modern improvements which have to do with fuel economy; that is, they do not have superheaters, brick arches, or other appliances. As will be noted from the illustration, the firebox is of narrow type. Due to the small amount of heating surface and the shape of the firebox it was difficult to maintain the maximum steam pressure at all times.

The Class P locomotives are of a slightly heavier type having a tractive effort of 21,040 lb. and a total weight of 150,000 lb. They were built in 1906. At the time they were acquired by this company in 1920 they were rebuilt and fitted with superheaters, brick arches, extra air compressor, Econ-

TABLE 1—LOCOMOTIVE DATA

	1920 Class E	1921 Class P
Tractive effort.....	18,553 lb.	21,040 lb.
Cylinders, diameter and stroke.....	18 in. by 24 in.	19 in. by 24 in.
Valve gear.....	Stephenson	Stephenson
Valve.....	Balanced slide	Economy piston
Weights in working order—		
On drivers.....	94,000 lb.	115,000 lb.
On front truck.....	14,000 lb.	35,000 lb.
Total engine.....	108,000 lb.	150,000 lb.
Tender.....	79,000 lb.	124,200 lb.
Wheel base—		
Driving.....	15 ft. 6 in.	13 ft. 6 in.
Total engine.....	23 ft. 6½ in.	23 ft. 11 in.
Total engine and tender.....	44 ft. 8¾ in.	50 ft. 6½ in.
Driving wheels, diameter over tires.....	57 in.	63 in.
Boiler—		
Steam pressure.....	160 lb.	180 lb.
Diameter, first ring, outside.....	57 in.	58½ in.
Firebox, length and width.....	71 ¾ in. by 31 ¾ in.	102 ½ in. by 40 ¼ in.
Tubes, number and diameter.....	226-2 in.	131-2 in.
Flues, number and diameter.....		18-5¾ in.
Tubes and flues, length.....	11 ft.	13 ft. 8¾ in.
Grate area.....	15.7 sq. ft.	25.5 sq. ft.
Heating surface—		
Firebox (incl. arch tubes if used).....	138.3 sq. ft.	148 sq. ft.
Tubes and flues.....	1,303 sq. ft.	1,211 sq. ft.
Total evaporation.....	1,441.3 sq. ft.	1,359 sq. ft.
Superheating—		
Tender—		
Water capacity.....	3,500 gal.	5,500 gal.
Fuel capacity.....	9 tons	12 tons

group of Ten-wheel locomotives, referred to in this article as the Class P, which were purchased to displace the Class E for road service. From December, 1920, until April, 1921, the road tonnage was handled with both classes of power. Since April, 1921, the road tonnage has been handled entirely with the Class P locomotives, and the Class E have been stored. Inasmuch as this article deals with the com-

omy steam chests; other betterments were also made which did not affect the fuel economy. These locomotives are free steamers, having fireboxes placed above the frames and a sufficient amount of heating surface.

Comparing the two locomotives, it will be noted that neither is of modern design, although the Class P has some-



Fig. 2—Rebuilt Class P Locomotive Used in 1921

advantages in tractive effort and heating surface. The main differences between the two, outside of design, are the superheater and arch applied to the Class P. The leading dimensions and weights are given in Table 1.

Turning now to the savings effected by the change in locomotives, attention is called to Table 2 in which are shown the mileage figures, coal consumption and other data for five months in 1920 when all road traffic was handled by Class E locomotives and for the corresponding period in 1921 when the traffic was handled by Class P locomotives. The figures for the intervening period are omitted, because, as already stated, both types of locomotive were in service at that time. The value of the coal consumed by the locomotives was calculated at a uniform average price of \$3.50 per ton for the

TABLE 3—COMPARISON OF 1920 AND 1921 PERIODS

	1920	1921	Percentage increase or decrease
Cars per train.....	11.47	12.44	+ 8.5
Net revenue tons per train.....	202.60	186.60	- 7.9
Net revenue tons per car.....	17.67	15.00	- 15.1
Pounds of coal per locomotive mile.....	177.70	108.00	- 39.2
Pounds of coal per train mile.....	336.50	163.20	- 51.5
Pounds of coal per car mile.....	29.35	13.11	- 55.3
Pounds of coal per 1,000 net revenue ton miles.....	1,661.00	876.00	- 47.3
Cost of coal per locomotive mile, cents.....	31.10	18.90	- 39.2

better comparison of the fuel costs. In Table 3 additional comparative figures are given which have been calculated from the data given in the preceding table.

Unfortunately, the figures covering gross ton-miles have not been kept until recently on the Akron, Canton & Youngstown and are not available for a comparison of the work done by the two types of locomotives in the periods selected for comparison. The net revenue ton-miles was practically the same for the two periods. The average number of cars in a train was somewhat higher in 1921 but the loading was not so satisfactory. The actual total saving in coal for the five-months period of 1921 as compared with 1920 was 9,344 tons, which at the price of \$3.50 per ton amounted to \$32,704, or at the rate of \$78,490 per year.

If a comparison is made on the basis of locomotive miles, which would appear to be the best available basis of comparison, it will be noted that the rate of coal consumption was 177.7 lb. per mile in 1920 against 108 lb. in 1921. At the assumed cost this would amount to 31.1 cents in 1920 and 18.9 cents in 1921, a saving of 39 per cent in the locomotive fuel bills.

The data presented deals only with the savings effected in fuel. No attempt has been made to estimate other savings effected. There is no doubt that an appreciable saving was made in locomotive and train crew time, for the Class P locomotives get the tonnage over the road on schedule whereas the Class E engines did not. The ratio of the engine failures of the Class P engines to the Class E engines were about one to six for the period, and as every engine failure means a tangible money loss to the carrier this also would swell the savings. It is entirely possible that the savings accruing in the transportation department would be no small percentage of the savings of the mechanical department.

THE AMERICAN PEOPLE in framing their tariff policies and navigation laws should always remember that Canada buys more from them than any other country. In other words, Canada is the best customer of the United States. On the other hand, Canada's best customer is Great Britain and the inevitable result of high tariffs and extreme navigation regulations, together with the demands for high premiums in money exchange, will lead to the reduction of Canada's buying in this country. There is no suggestion of ill feeling in this statement; it is merely an ordinary business proposition.—D. C. Coleman, Vice-President, Canadian Pacific, in the *New York World*.

Plan for Commissioner General of Transportation Not Approved

WASHINGTON, D. C.

ON THE ground that the time is inopportune for the establishment of a new governmental agency in charge of a commissioner general of transportation to represent the public interest in railroad questions, a recommendation by the National chamber's railroad committee that such a proposal be submitted to a referendum of the chamber's membership was disapproved by a resolution which was adopted by the national council of the chamber on February 9.

The council, however, gave its endorsement to the recent action of Secretary of Commerce Hoover in appearing before the Interstate Commerce Commission as the representative of the public, and expressed the hope that the secretary would continue to exercise this authority when circumstances make it appropriate.

The national council also took the position that the time is not propitious to take a referendum on the question of compulsory adoption of the metric system in the United States.

The resolutions adopted were as follows:

"No committee of the chamber has a more distinguished record for service and accomplishment than the railroad committee. From the board of directors the national council has at this meeting received a report in which the railroad committee presented its views respecting subjects of great importance. After opportunity to understand the committee's views, and as a consequence of further considerations brought out in debate, the national council suggests that the board should ask the railroad committee to continue its vigorous examination of the national problems in railroad transportation, and especially the manner in which the Transportation Act of 1920 meets the high purposes for which it was framed, and believes that the committee's suggestion for a new governmental agency in the transportation field is not timely for submission to a referendum vote."

"The secretary of commerce has performed a distinct public service by appearing before the Interstate Commerce Commission and presenting questions which arise from the economic and business situation. As the government's official representative of industry and commerce the secretary of commerce speaks with an authority that commands attention. Believing that the public interest requires such an authoritative presentation when matters of national importance in transportation are under consideration, the national council is gratified to learn that the statutes creating the department of commerce authorize the secretary to perform such a service and that the secretary is disposed to use this authority when circumstances make it appropriate."

Resolutions received by the resolutions committee, with respect to which the declarations recommended by the resolutions committee do not constitute an affirmative report, the committee recommended should be referred to the board of directors for its consideration and such action as it may deem appropriate.

The resolutions as to which this recommendation is made include:

Appointment of a subcommittee in the chamber's transportation department to study problems of highway development.

Opposition to any amendment of the Transportation Act of 1920 before a full test after return of normal traffic conditions.

Relation of freight rates to business operation.

THE CHICAGO UNION MAIL TERMINAL has ordered 370 tons of conveyor and structural steel supports from the Pittsburgh Bridge & Iron Company.

I. C. C. Orders Increase in New England Divisions

Roads East of Hudson to Receive 15 Per Cent More of Revenue from Joint Class Rates

THE Interstate Commerce Commission on February 14 made public a modified order in the New England rate division case, dated January 30, following the reargument in November, in which it orders that the divisions accruing to the New England lines of the joint class rates and of the joint commodity rates which divide on a class rate basis other than those in which the Bangor & Aroostook participates, be increased 15 per cent, except in cases where the present divisions of the New England lines are greater than the division accruing to the lines west of the Hudson, in which cases they are to be increased by 15 per cent of the divisions now accruing to the lines outside of New England. It is estimated that this will increase the revenues of the New England lines by approximately \$7,500,000. The order is effective on March 1.

In its former report the commission found that the record afforded no foundation upon which might rest a valid prescription by it of divisions, but it recommended that the roads appoint committees to work out a readjustment themselves. Subsequently, no readjustment having been accomplished, the New England lines filed a petition for reargument, which was held on November 29, and in the light of the commission's further consideration of the law and the evidence it has issued the new decision to give some relief to the New England roads. The report said in part:

Abstract of Commission's Report

It is impossible to avoid the conclusion that Congress intended the relative financial needs of carriers, so far as these needs are legitimate and incident to the transportation service, to be given consideration in fixing divisions; and it is just and right that this should be so. The cost of the service includes not only expenses of operation but taxes and the proper capital charges incident to the continued functioning of the property. The share of overhead costs fairly attributable to interchange traffic may likewise be greater, relatively, where this density is low. Moreover, the group plan of increasing rates which we followed in 1920 under the provisions of the new law necessarily results in inequality of return to the various carriers. Certain of them gain a larger reward than they would receive if it were practicable to fix rates for individual companies, while others have less. Yet all are parts of the national transportation system and must be adequately maintained if they are not to be abandoned. Due regard for the public interest demands that we give these fortuitous inequalities consideration in the fixing of divisions.

Summing up this phase of the matter, we are of the opinion that our power over divisions is founded upon the public interest; that the carriers are mutually dependent parts of the transportation system; that the public interest requires that all essential parts be maintained, so far as possible, in effective working condition; that the relative amount and cost under economical and efficient management of the service rendered is a prime factor in determining the fair and equitable share of joint revenue which each carrier shall receive; and that included in such cost is a due proportion of the burden of maintaining the financial integrity and credit of the carrier.

Complainants perform their part of the interchange service under less favorable conditions than their connections west of the Hudson River. They are terminal lines; their hauls are short; their traffic splits at frequent junction points and is diffused over many secondary and branch lines; their trainloads are necessarily relatively light; the density of their freight traffic is relatively low; and while their investment per mile of road is low, their investment per revenue ton-mile is relatively high. Moreover, no coal mines are located on their rails, and fuel and many other of their supplies must be brought from considerable distance.

These unfavorable conditions are not new; they have long existed. They have been the cause, however, of a disproportionate increase in the burden upon the New England lines during the past three years. This has come about from the extraordinary

WASHINGTON, D. C.

increases in wages and rates which have taken place within that period. It is inevitable that when freight rates are increased the carrier that brings its fuel and other supplies from a distance will suffer disproportionately. On coal alone and by the 40 per cent increase in freight rates alone complainants' costs were increased over \$3,400,000 annually. It is also inevitable that when wages are increased the carrier that produces less ton-miles per unit of labor will suffer disproportionately. In this connection the following statistics for the year 1919 are of particular significance. They show percentages for the New England lines as compared with their connections in trunk line and central territories:

Car-miles per car-day.....	73.5 per cent
Net ton-miles per car-day.....	60.8 per cent
Net ton-miles per train-mile.....	57.4 per cent
Net ton-miles per locomotive-day.....	55.9 per cent
Cost of yard expenses per 1,000 net ton-miles.....	155.5 per cent
Freight-train costs per 1,000 net ton-miles (wages).....	184.1 per cent
Freight-train costs per 1,000 net ton-miles (total).....	176.7 per cent

While labor is apparently not so large a factor, relatively, in the operations of the smaller northern New England lines as it is in the operations of the more complex and congested lines of southern New England, the northern lines have likewise suffered a disproportionate burden by reason of the increases in wages during the past three years to a standardized level, since the wages which they paid theretofore were below the average prevailing in the eastern group.

The divisional arrangements exhibited of record are built upon block bases, and in some cases constructive mileage is used or arbitraries are added. As pointed out in our former report, the blocking is often irregular, inconsistent, and illogical. Nevertheless, this system of dividing the joint rates of the New England lines and their western connections has existed for a great many years, and, so far as the record shows, without complaint until the extraordinary changes of the past three years. It is a reasonable assumption that until then it produced on the whole results which were fair.

The divisional arrangements shown apply to class rates, and generally to the commodity rates on articles which are classified. There is no evidence with respect to the divisions on coal and coke, fluid milk and its edible products, high explosives, or certain low-grade commodities moving short distances. Nor were divisions of the Bangor & Aroostook shown. Findings can not be made with respect to any of these divisions, and complainants do not now ask for such findings. On the other hand, defendants made no offer to prove that divisions in such cases are so favorable to complainants as to make up for deficiencies elsewhere, and the absence of evidence in regard to the divisions of certain rates constitutes no reason for failure to act upon the divisions as to which there is evidence.

Before the extraordinary changes of the past three years the New England lines, because of the relatively unfavorable conditions which have already been mentioned, were clearly entitled to divisions materially larger than would be received under a mileage prorate. The evidence shows:

1. That in not a few cases the present New England divisions are less than would be received on a strict mileage basis; that they are generally larger; but that in many cases the excess is slight.

2. That in many cases the New England divisions are larger than would result from a 50-mile block plan, allowing an extra block of 50 miles to both the originating and the terminal carrier, although frequently they are smaller.

3. That in many cases the New England divisions are a smaller percentage of the corresponding local rates than are the divisions west of the Hudson, although by no means in all cases.

4. That in the instances where the New England lines are allowed arbitraries before the division of the rates, these arbitraries have not been increased, notwithstanding the large percentage increases which have been made in the joint rates in recent years.

Having in mind that the 50-mile block plan is designed merely to afford some additional compensation to the originating and terminal carriers and makes no allowance whatever for operating disadvantages of the New England roads, apart from terminal service, there is nothing in this evidence which tends to overthrow the presumption that the divisional arrangements, prior to the recent extraordinary changes, produced fair results or that they were unduly favorable on the whole to the New England carriers. But if this presumption be accepted as a fair and reasonable conclusion from the facts of record, the further evidence with regard to the effect of the recent extraordinary changes leads

inevitably to the conclusion that the scales which formerly hung approximately level as between the participating carriers are now tipped against the New England roads and in favor of their western connections, because of the disproportionate results of these changes.

Financial Needs

These conclusions are further supported by the evidence in regard to financial needs. In 1917 the railway operating income of the complainants amounted to 5.68 per cent upon their recorded railroad property investment, as compared with 5.63 per cent for the carriers in the remainder of the eastern group. In 1919 this had changed to 1.02 per cent for the New England lines and 1.84 per cent for the other carriers. For the first 10 months of 1920 the railway operating deficit of the New England roads amounted to 3.10 per cent upon investment, while the similar deficit of the other eastern carriers was but 0.92 per cent. Finally, in the 12 months ended September 30, 1921, it appears that the deficit of the New England roads was 0.87 per cent upon investment, while the income of the other carriers amounted to 2.85 per cent. Thus the relative situation of the New England carriers has grown progressively worse, and it is a fact generally conceded that as a group they are in greater financial need than any similar group of important carriers in the country.

Nor does the evidence indicate that the financial needs of the New England lines are ascribable to the low level of their local freight rates or passenger fares. Both the class and commodity rates within New England were revised and increased in 1914.

The class rates were again sharply increased following our decision in *Proposed Increases in New England*, and upon this special increase were superimposed the subsequent 25 per cent and 40 per cent increases. The evidence also shows that passenger traffic in New England is generally more profitable than freight traffic.

If this were a case involving a proposed general increase or reduction in rates, evidence of the character which has thus been summarized, indicating a general need for relief, would be deemed persuasive and as justifying a horizontal increase or reduction. It has been our practice in such cases to disregard the immediate effect upon particular rates and to afford relief without delay, leaving a door open for any necessary subsequent readjustments.

In all such general rate cases we have realized and have held that if we were required to consider the justness and reasonableness of each individual rate, the law would in effect be nullified and the commission reduced to a state of administrative paralysis.

Is there good reason why a similar policy should not be pursued when parts of rates, i. e., divisions, are in issue? Manifestly there is need, in the case now before us, for a thorough revision of divisional arrangements upon a more logical and systematic basis. Manifestly, also, if a horizontal increase is made before this revision takes place, the result may be to leave certain divisions too high and others too low. But in this respect the results flowing from the general increases or reductions in rates which we have frequently authorized have been parallel. Moreover, any comprehensive revision upon a logical and systematic basis can be consummated only after many months of labor and, very probably, only after further prolonged recourse to us. In the meantime the New England lines will be denied even a portion of the relief to which the record indicates that they are entitled and which the public interest clearly requires.

Upon further consideration we are of the opinion that in a case involving divisions we may, when the public interest so requires, grant immediate relief subject to later readjustments, as we have done in cases involving general increases or reductions in rates. Otherwise, we shall fail to do substantial justice. The act requires a practical administration, and prompt action where that is necessary in the public interest. In our former report we recognized the need for a revision of the divisions. The course of action suggested in that report having failed to produce prompt relief, we must adopt another, justified by the record, which will accomplish what Congress intended should be accomplished.

Complainants Entitled to Immediate Relief

We are of the opinion, therefore, that some immediate relief may properly be granted to complainants, pending revisions of the existing divisions upon a more logical and systematic basis; but that relief should be held within conservative limits. The New England lines are in part responsible for the difficulties which the case presents because of their failure until recently to give the attention and study to their divisional arrangements of which these have plainly been in need. It remains to determine what form this immediate relief should take.

As already stated, evidence is lacking in regard to the divisional arrangements on certain specified classes of traffic. Our action will be restricted to the divisions of class rates and of the commodity rates which divide on the class-rate basis.

In one of their exhibits complainants showed, for a constructive year October 31, 1919, the revenues accruing to them on so-

called merchandise traffic interchanged with connecting lines and the revenue accruing to the other carriers participating in the same traffic. This covers traffic other than coal and coke. Eliminating interchange with Canadian lines, the total revenue on this merchandise traffic was \$117,118,424, and of this amount \$37,974,231, approximately one-third, accrued to complainants, and the remainder, \$79,144,193, approximately two-thirds, to connections. In the presentation of their case in *Increased Rates, 1920, supra*, the carriers showed that prior to the increase of wages in 1920 the New England lines required an increase of about 47.5 per cent in their freight revenues to meet their needs, while the other carriers in the eastern group required but 28 per cent. It was testified that the increases which we subsequently authorized averaged about 37 per cent throughout the eastern group. If it had been possible to provide at that time that one-half instead of one-third, of this increase on the merchandise interchange traffic should accrue to the New England lines because of their greater needs, they would have been benefited to the extent of about \$7,500,000 additional per year, and no one, we think, would have regarded such a distribution of the increase as unfair under the circumstances. This amount, moreover, falls well below any estimate of the disproportionate burden which the New England lines have suffered in the past three years by reason of the extraordinary changes in rates and wages.

An increase of this amount in the divisions received by complainants would manifestly be of benefit to them far greater than the detriment to their western connections. To illustrate this: If the railway operating income of complainants had been increased by \$7,500,000 in the 12 months ended September 30, 1921, their deficit of 0.87 per cent on investment would have been converted to an income of 0.04 per cent; while if the railway operating income of the other lines in the eastern group had been decreased by a like amount, the result would have been only a reduction in the amount earned on investment from 2.85 per cent to 2.76 per cent. It further develops that if the divisions now received by complainants on this merchandise traffic were increased by 15 per cent, subject to the limitation set forth, the result, as nearly as can be estimated, would be an increase in revenue of not exceeding \$7,500,000.

We find, therefore, that the divisions of the joint class rates here under consideration and of the similar joint commodity rates which divide on the class-rate basis, other than those in which complainant, the Bangor & Aroostook Railroad Company, participates, will for the future be unjust, unreasonable, and inequitable to the extent that complainants' divisions thereof shall be less than 115 per cent of their present divisions, except in cases where their present divisions are greater than the divisions accruing to defendants, in which cases the aforesaid divisions will for the future be unjust, unreasonable, and inequitable to the extent that complainants' divisions shall be less than their present divisions plus 15 per cent of the divisions now accruing to defendants. We further find that the just, reasonable, and equitable divisions to be received by the several other carriers participating in the aforesaid joint rates will for the future be the amounts remaining of the joint rates over and above the divisions so to be received by complainants, to be divided among them as they may agree, or, failing such agreement, as may be determined by us upon application therefor.

We enjoin upon complainants and defendants the necessity for proceeding as expeditiously as possible with the revision of divisions upon a logical and systematic basis which we recommended in our former report; and in order that delay in this process may be reduced to a minimum, we make the following additional recommendation:

Instead of attempting to cover the entire field at once, certain important traffic of comparatively simple characteristics should be selected and attention concentrated in the first instance upon the divisions of the rates upon such traffic in order that a suitable guide for the revision of other divisions may as soon as possible be provided. In making a study of such specific rates, every effort should be made to ascertain with such approximate accuracy as may prove possible the respective costs of the service performed by the various participating carriers, including in such costs a fair share of the charges attributable to taxes and a reasonable return upon the property. The other elements mentioned in the statute, in addition to mileage, should likewise be considered. In case of inability to agree upon the divisions of such rates, the question may be presented to us in advance of the consideration of other specific divisions.

Commissioner Potter wrote a concurring opinion while Commissioners Daniels and Hall wrote dissenting opinions. Commissioner Esch also dissented.

Dissenting Opinion

Commissioner Hall said in part:

"In administering and enforcing the interstate commerce act we can change what the carriers do or have done only as

we find violation of that act, and in doing so must mete out an evenhanded justice to all parties before us, whatever their weakness or strength. It has not been committed to us to equalize the fortunes of carriers, of localities, or of men.

"In the present proceeding we find some, not all, of the rail carriers in New England arrayed against practically all other rail carriers in the United States. Joint rates, class and commodity, from and to the South and the West, clear to the Gulf and the Pacific, are maintained by these New England carriers in connection with the defendants there, as well as with their nearer neighbors just across the Hudson. The Potomac, the Ohio, and the Mississippi are crossed as well as the Hudson. The defendants are in varying stages of prosperity and adversity. Some are in the hands of receivers. Some, like those in the South, have suffered far greater enhancement of their labor costs by federal wage increases than have the complainants. Yet all of these defendants, without exception, are here required to yield up to some New England roads shares greater by 15 per cent than those which they have agreed upon among themselves. No attempt is made to ascertain the effect upon defendants of this requirement, or to ascertain whether the shares remaining to them of the joint earnings will be just, reasonable, and equitable. There is not even a perfunctory compliance with the mandates of the statute in that regard. The record affords no basis for it. The one outstanding fact in the report is that in the opinion of the majority the complainants need the money. Perhaps the defendants need the money as much, and have a better right to it. On that we get little light and no facts on which to exercise a judgment. What are the rates to be divided, what is the important tonnage which moves at those rates and on which the important earnings are made, what are the respective services performed by the participants in effecting the movement, what are the cost and value of those services, and what the present divisions here condemned? The report gives no answer.

"These divisions were determined by the parties themselves many years ago. Complainants make no attempt to show that they were cozened or coerced into agreeing upon them. On the contrary, they urge that until recent years their divisions, as a whole, were reasonable. They now claim that because conditions which have developed during the last few years have affected them seriously, their divisions, as a whole, are no longer reasonable. They show how these conditions have affected them but do not attempt to show how defendants have been affected by like or other conditions, or will be affected by decreased divisions. The burden is upon complainants. There is thus a failure of proof in essentials necessary to entitle complainants to such reformation of their contracts as is here required.

"I can give no adherence to the view that we may increase or decrease divisions of joint rates simply to meet the varying financial needs of particular carriers or groups of carriers without regard to the amount, cost, or value of the services performed by the participating carriers, or the share of joint earnings which will remain to each after the change is made."

CANADIAN RAILWAY PROBLEM.—The Montreal Herald, demanding that the Government "Stop Some of the Railway Waste," says that at the Union Station, in Quebec "a strange thing is to be seen every night. On one track there is a C. P. R. train loaded with passengers for Montreal. On the next track is another splendid train, also bound for Montreal, with not a soul in it—a train belonging to the Canadian National. For months past the National Railways have been running a train each way every day between Montreal and Quebec. It may be that traffic somewhere along the line justifies this, but the impression is that here is where some of that heavy railway deficit is incurred. It is said that these daily National trains between Montreal and Quebec cause a loss of from \$700 to \$800 a day.

Progress of Railroad Administration Liquidation

WASHINGTON, D. C.

DIRECTOR GENERAL Davis of the Railroad Administration has submitted a report to the President covering the 22 months from the termination of federal control of the railroads on March 1, 1920, to December 31, 1921, which has been transmitted to Congress. Mr. Davis estimates that by the end of this year at least 80 or 90 per cent of the claims of the railroads against the government should be adjusted and that the balance of the carriers' claims and all other demands of third persons should be so nearly disposed of during 1923 that at the end of that time consideration should be given to the abandonment of the existing Railroad Administration and transferring the limited amount of undisposed of matters remaining to some permanent organization of the government.

If future adjustments with the carriers are concluded upon the same general lines as those which have been consummated in the past, Director General Davis says, the administration, with its available assets, including cash on hand, assets in field, and the sale and collection of obligations of the carriers now owned by the government and taken from the carriers, in matters connected with and growing out of federal control, should be able to wind up all matters, questions and disputes arising out of or incident to federal control without any further direct appropriation by Congress.

The director general reviews the contention of the Railroad Administration and the carriers in regard to the interpretation of the standard contract which was executed by roads operating 206,401 miles of road, while roads operating 34,793 miles refused or failed to enter into a contract. The serious differences of opinion, he said, grow out of controversies in the matter of maintenance, repairs, renewal, retirement and depreciation, and in addition, with non-contract companies, the question of reasonable compensation for the use of the property. Another fruitful source of controversy arises over the question of the liability for materials and supplies taken over by the government, the book value of which on December 31, 1917, was \$532,528,864.

Although the differences in the construction of the maintenance provisions of the contract were estimated to amount to \$600,000,000 to \$700,000,000, all settlements that have been made to date have been based on the construction of the contract claimed by the government. Up to December 31, claims in final settlement had been filed aggregating \$931,721,488, representing a total main line mileage of 208,731 miles. On this basis it is estimated that the total amount of claims will aggregate about \$1,100,000. Up to the end of the year claims amounting to \$447,518,009 had been adjusted for \$133,694,353. The claims settled represented 116,099 miles or 48.135 per cent of all the main line mileage under federal control. These adjustments were completed with practically no litigation. The short line railroads have filed claims aggregating \$1,732,272.

Discussing the claims of third persons against the Railroad Administration, the director general says that upon the termination of federal control the then acting director general issued an order providing for the opening by each carrier whose property was taken of what is designed as a trustee account, in order that the general assets of the Railroad Administration arising out of federal control might be collected and the general operating liabilities paid through these accounts. For the 22 months covered by the report, the roads collected assets due the Railroad Administration in the field aggregating approximately \$530,000,000 and there was paid out on federal liabilities through these accounts approximately \$970,000,000.

The various regional organizations created by the Railroad Administration to supervise this work authorized payment of \$32,118,139 in settlement of 37,260 claims for loss and damage, personal injury and fire, aggregating \$74,906,763. The amount recommended by the carriers in settlement of these claims was \$36,862,024 so the authorizations made by the regional organizations represented a saving to the government of \$4,743,884. In addition, claims aggregating \$7,686,345 were declined, although the representatives of the carriers had recommended payment of \$1,771,998 in settlement of these declining claims. The greater portion of the claims of this character having been disposed of, all of the regional offices, except that at New York, have been abandoned and the expense connected with them terminated. The central office in Washington maintains an organization which has supervision over the disposition of the remaining claims.

On reparation claims the administration has paid out on formal awards \$522,789 and on informal claims \$543,996, a total of \$1,066,786. In addition, there will be from 50,000 to 75,000 overcharge claims that will require adjustment. Payments of reparation claims are made out of the \$300,000,000 revolving fund under the control of the Interstate Commerce Commission. The Railroad Administration has paid out on account of liabilities resulting from unfinished contracts with inland waterways \$4,636,028. There is still a small amount of these liabilities which the Railroad Administration must finally pay, but its relations with the inland waterways are practically concluded.

In discussing the additions and betterments made during the period of federal control the director general says there is a controversy of some magnitude arising out of the question as to whether certain claims for additions and betterments should be borne by the carriers or by the administration. These disputes arise largely in the matter of improved facilities which the railroads claim were made for war purposes. Up to December 31, 23,797 of these claims, aggregating \$91,318,381, had been presented; 14,704 of these claims have been disposed of; claims amounting to \$6,313,408 have not been allowed, while claims amounting to \$13,993,511 were declined and claims amounting to \$3,610,895 were withdrawn.

The aggregate receipts of the Railroad Administration from March 1, 1920, to December 31, 1921, were \$1,093,757,504 and the disbursements were \$912,496,869, leaving a balance available for the general purposes of liquidation of \$181,260,634. The estimated amount due the carriers with which final settlements have not been made is \$241,062,934.

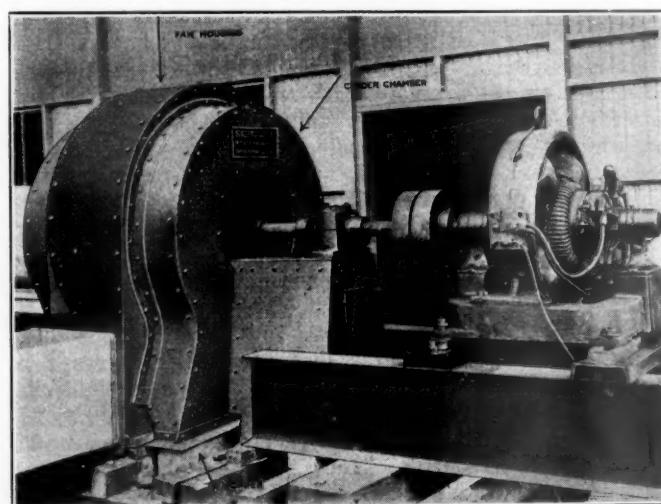
The estimate is based on the administration collecting practically the full amount and that future adjustments will be made along the same general lines as those already collected. On these estimates the Railroad Administration will require some \$59,000,000 in addition to present available funds to complete the final adjustments with the carriers, but it has some other sources from which it may receive some cash and it is, therefore, the judgment of the administration that no additional appropriation will be required. On December 31 the Railroad Administration held \$130,054,053 of definitive obligations of carriers in addition to \$183,255,400 of equipment trust notes. The report says there would seem to be no good reason why the government should not realize and collect a substantial proportion of these obligations. The Railroad Administration had sold \$140,197,700 of the equipment notes and the proceeds were transferred to its account with the Treasury.

During 1921 an average of 1,250 people were in the employ of the Railroad Administration and their total compensation aggregated \$3,084,020. This overhead for the central office in Washington, the report says, is much less than half in number and amount as compared with similar expenses during the period of federal control.

Cinder-Separating Induced Draft Fan

WITH THE IDEA of separating cinders and dust from exhaust gases and thus greatly reducing the smoke nuisance, the B. F. Sturtevant Company, Boston, Mass., has developed a cinder-separating, induced draft fan, shown in the illustration.

The fan housing is indicated by an arrow, also the cinder chamber and the hopper in which dust and cinders collect by gravity. Buckets are provided at the inlet edges of the blades of the paddle wheel. These buckets catch and separate the dust and cinders which are conducted by means of inclined channels leading out into the special dust chambers in the fan. Several small guiding vanes serve to direct the air and cinders into the inclined channels. Since it is impossible to blow dust with air as this would involve again a separation problem, arrangement is made for the dust to settle and fall by gravity into the dust chambers. These dust chambers lead to the closed hopper at the bottom in which the dust accumulates and from which it can be removed periodically or continuously by means of screw or other conveyors. The cinder-separating induced draft fan requires no more attention than an ordinary induced draft fan. It is said to be unusually efficient as a fan and to remove 75 per cent of the solid matter in the gases. The



Sturtevant Fan Designed to Separate Dust and Cinders from Flue Gases

fan removes a still larger proportion of the heavy coarse material which drops over the city in the neighborhood of power plants causing complaints from the residents. Two of these fans have been installed in a large power plant in New York City and are reported to operate successfully. They are used in connection with six 500-hp. boilers and when these boilers are operating at 200 per cent rating, it is found that each fan removes 250 lb. of cinders per hour. At higher ratings this would be much greater. The material resembles a fine coke breeze and on an analysis shows about 9,700 B.t.u. per pound.

The cinder-separating induced draft fan is particularly desirable for use with underfeed stokers. These do not cause a serious smoke nuisance when boilers are operating at normal ratings. They do, however, when the boilers are being forced above normal ratings. Extremely fine particles in the smoke are not particularly objectionable because they are carried away by the air currents and not deposited over the surrounding neighborhood, but the dust and cinders in the gases are fairly heavy and fall within a comparatively short distance of the stack; hence the need of an efficient cinder-separating fan.

Improved Hanna Locomotive Stoker, Type H-2

Changes in Design Increase Simplicity and Durability—Performance
on Norfolk & Western

THE HANNA STOKER, made by the Hanna Locomotive Stoker Company, Cincinnati, Ohio, belongs to the class in which the fuel is delivered in front of a jet of steam by which it is blown into the firebox and distributed over the surface of the grate.

In general, the stoker consists of a steam cylinder which, by means of a rack and pinion rotates a screw conveyor by which the coal is brought from the tender to the locomotive. The coal is then delivered to two screw elevators enclosed in a housing embracing the firing door and elevating on each side of it. These elevators deliver to two oscillating chutes from which the coal drops upon a distributor plate over which it is blown into the firebox and by means of

11 in. air brake compressors. Should the conveyor become jammed either by large lumps of coal or by foreign substances such as bolts or stone, it may be necessary to reverse the motion of the piston before it has completed its full stroke. To accomplish this there has been introduced a reversing valve of the piston type operated by a lever in the cab through a system of bell-cranks and rods. The two steam passages from the main slide valve, instead of leading directly to the opposite ends of the cylinder, are carried to the reversing valve chamber, the arrangement of ports being such that by the movement of the reversing valve the steam is caused to flow to the opposite end of the cylinder from that to which it flows when the valve is in the other position.

The end of the extended piston rod is coupled to the rack by means of a key. In addition to the usual stuffing box on the cylinder head, the piston rod passes through a second stuffing box on the rack housing, which is an oil tight case. The rack housing is bored out to take the rack guide which is fitted with two side keys. A bearing and wearing strip is inserted between the rack and the rack guide to take the downward thrust of the rack as it works back and forth to drive the gears. The outer end of the housing is closed by a cap, the removal of which furnishes access to the rack.

Mounted on top of the rack housing is the gear box in which is located the nest of gears which drive the screw conveyor and the two elevators. There are two pinions in mesh with the rack which are so connected by gears and clutches to the conveyors that one of the pinions acts as a driver on the out stroke of the piston while the other pinion becomes the driver on the opposite stroke, thus imparting a continuous motion in one direction to the conveying mechanism.

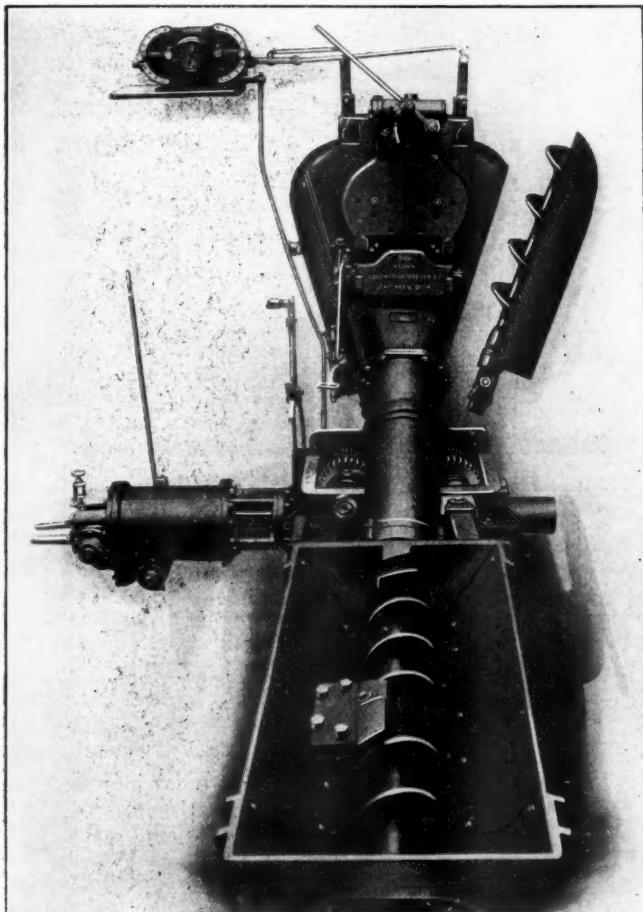
A telescoping transmission shaft of square section and equipped with universal joints is located on the right hand side and transmits the driving power from the gear case on the locomotive to the gears at the back end of the main conveyor shaft on the tender. This arrangement provides the necessary compensation for the motion between the locomotive and the tender.

The casing of the conveyor on the tender terminates in a ball joint at the front end where it is joined to an inclined circular section which connects the tender to the locomotive. The short conveyor screw in the connecting section is attached to and is driven by the conveyor screw on the tender, a universal joint being used for the connection of the two portions. The elevating screws are independent of the conveyor and are driven direct from the gear case by two universal connections located on the front portion of the gear case.

Coal Distributing Mechanism

The pinions driven by the rack are provided with clutches which can be reversed by means of a lever at the left of the firedoor. Should it be desired to run the conveyor screws backward, the pressure on the rack is first relieved by reversing the engine as previously explained, and the gear clutches then shifted to bring an extra gear into action which reverses the motion. In addition to these devices a coupling has been provided at the top of the gear case whereby the transmission shaft may be cut off and the conveyor stopped without shutting down the engine. This clutch is operated by a lever on the deck at the right of the fire door.

The coal after being conveyed from the tender to the loco-

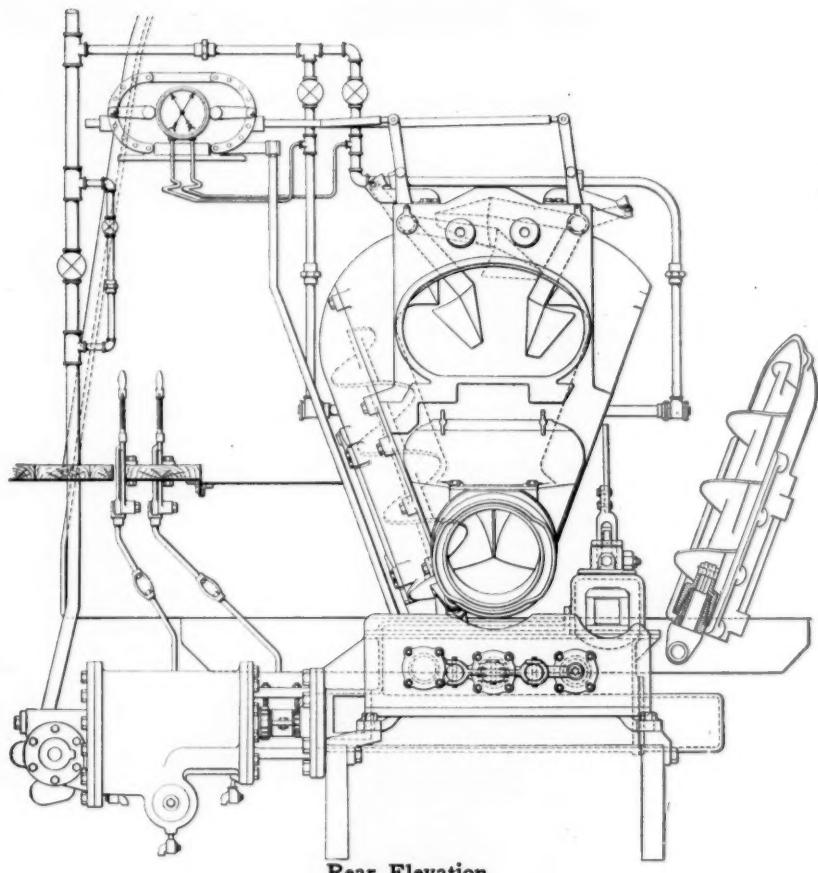
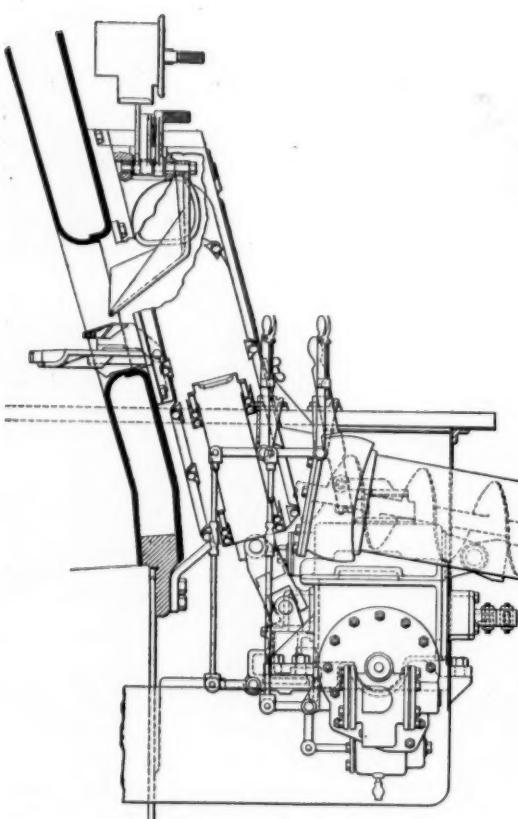
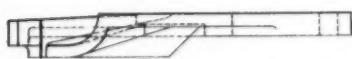
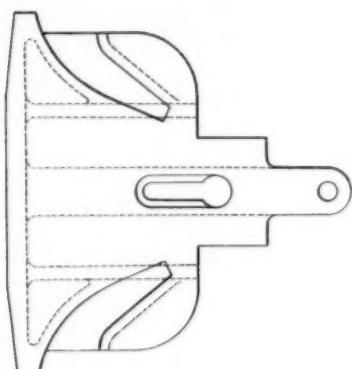


General View of Hanna Locomotive Stoker

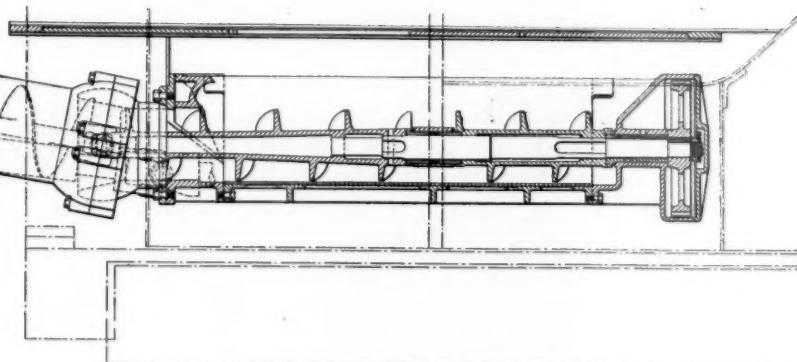
which it is given the proper distribution. The details of the mechanism have been in process of development for a number of years. The speed of the conveyor screws can be varied at will to deliver any desired quantity of fuel; or, in case of clogging or jamming, the conveyor screws can be reversed. Coal may be scattered evenly over the surface of the grate or the delivery concentrated in one place.

Engine and Conveyor of Simple Construction

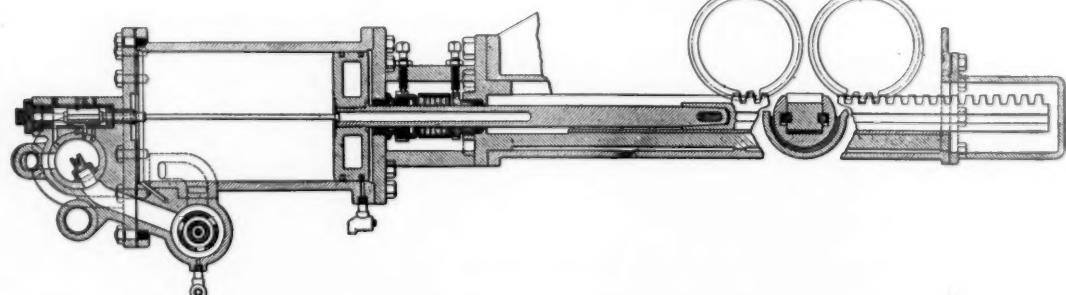
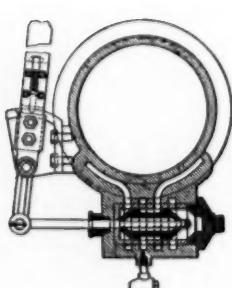
The motive power is derived from a single cylinder steam engine having a diameter of 11 in. and a stroke of 16 in. The valve mechanism is similar to that used in 9½ in. and



Rear Elevation



Longitudinal Section



Section of Engine and Rack Housing

motive and raised by the elevators falls upon two oscillating chutes which swing to and fro as they drop the coal onto the distributor plate. This plate, which is an important element in the operation of the stoker is of cast iron and sets in a casting at the bottom of the fire door from which it can be easily removed even while the fire is burning brightly. As will be noted from the illustration it consists of a broad flat plate with two curved diverging channels cut into the upper surface. These channels catch a portion of the coal as it is blown over the top of the plate and divert it into the back corners of the firebox along the back sheet.

The cast steel blast chamber is located above and slightly back of the distributor plate. It is provided with two trunnions tapped out for $\frac{3}{4}$ in. steam pipes, a different pressure

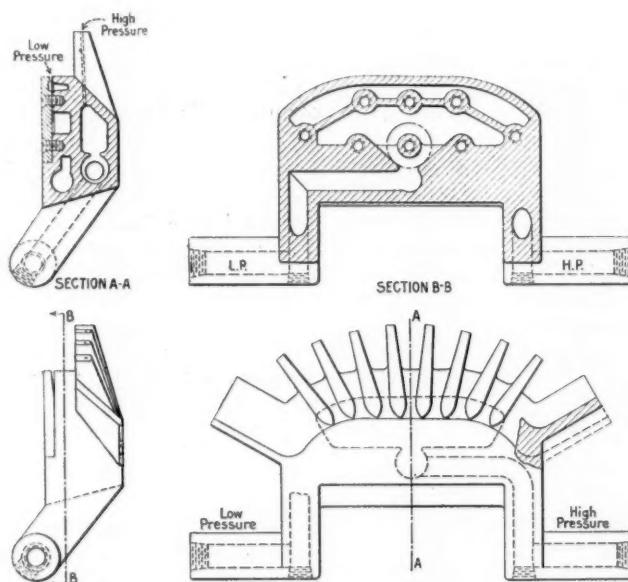
high and low pressure connections of the blast chamber.

By referring to the illustration showing the general rear elevation of the stoker it will be noticed that the main steam pipe leading to the engine is provided with a globe valve and with a $\frac{1}{2}$ -in. by-pass pipe having a second globe valve. In ordinary practice the main valve is kept closed, the by-pass pipe furnishing all the steam necessary to operate the engine at the speed required.

Performance on Norfolk & Western

As an example of the performance of the improved Hanna stoker, some notes relative to a recent run on the Norfolk & Western of a locomotive equipped with a stoker of this type will be of interest. The locomotive was of the Mountain type with 29 in. by 28 in. cylinders, 70 in. drivers, 80.3 sq. ft. grate area and a rated tractive effort of 57,200 lb. The run was from Roanoke, Va., to Bristol, a distance of 151 miles and return. On going west from Roanoke the start is over generally rising undulating grades ranging from 0.73 to 0.9 per cent extending for 20 miles to the eastern slope of the Allegheny mountains. Then there is a direct unbroken rise for about 10 miles on a 1.32 per cent grade to the summit, followed by a drop for about $6\frac{1}{2}$ miles on a 1.0 per cent grade to the valley of the New River. Then there are four sharp rises on grades running from 1.19 to 1.31 per cent with intermediate drops until the summit is reached at 94 miles from Roanoke, the elevation being 2,591 ft. above sea level. On the western slope there is at first a 10 mile descending grade of 1.125 per cent followed by a series of up and down grades of over one per cent into Bristol, the elevation of which is 1,675 ft., making a net rise of 775 ft. from Roanoke, and a total rise on up grades of 3,540 ft.

On the westbound run, known as the "Memphis Special," the train consisted of a mail car, a combination car, two coaches, three Pullman cars and a dining car, the total weight including the locomotive and the eight cars being about 834 tons. There are no regular station stops but two stops are necessary for water and one for coal. On this particular run there were ten stops including those at flag stations together with those for coal and water; in addition there was one slow-down for track work. The actual elapsed time for the run was 4 hr. 50 min., from which 16.5 min. is to be deducted for stops, leaving an actual running time

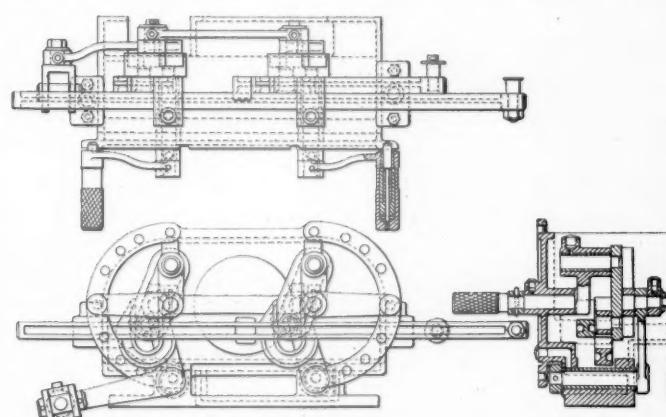


High and Low Pressure Blast Chambers

being supplied to the two connections. High pressure steam at from 25 lb. to 50 lb. pressure enters through the right hand trunnion, passes to the upper passage of the chamber from which it is discharged to the firebox through the eight diverging nozzles which are drilled with $\frac{5}{32}$ in. holes peened down to $\frac{1}{8}$ in. at the orifice. Low pressure steam at from 10 lb. to 25 lb. pressure enters through the left hand trunnion, passes to the lower part of the chamber and is discharged through three nozzles in the plate attached to the bottom of the blast chamber. The combination of the nozzles serves to distribute the coal evenly over the surface of the grates.

The oscillating chutes which deliver the coal to the distributor plate receive their motion from two connecting rods leading to the control box which contains a series of bell-cranks and links. This mechanism receives its reciprocating motion from a crank driven by a worm gear in the main gear case, a rod with universal joints being employed for the connection. On the front of the control box are two levers and handles which are used to adjust the link mechanism and thus regulate the swing of the oscillating chutes. The adjustments for the two chutes are entirely independent and thus provide the maximum flexibility in coal distribution. Should the stoker become inoperative from any cause, the chutes can be disconnected, turned up out of the way and latched; hand firing can then be started immediately. In such a case the coal is simply scattered by shovel on the distributor plate, the stoker blast being used to take the coal from this point and properly distribute it over the surface of the grate.

A duplex gage is also mounted on the front of the control box, the hands showing the steam pressure of the



Control Box

of 4 hr. 33.5 min., giving an average running speed of 33.1 m.p.h.

On leaving Roanoke there was a brightly burning fire, evenly distributed over the grates, with a depth of about four inches, and a steam pressure of 170 lb. Four minutes after leaving the pressure had risen to 190 lb. and from that time on it swung up and down between 175 lb. and 200 lb. Throughout the run the stoker was controlled by the fireman without having to leave his seat. The rate of feed was gov-

erned according to the steam gage and the appearance of the stack. Only immediately after starting was there any appearance of smoke. The fire door was opened by an observer a number of times when the steam was shut off and in every instance the bed of fire was thin and level.

Occasional adjustments of the steam pressure at the blast nozzles was required but these were slight. Pressures varied from 15 lb. to 20 lb. throughout the run with occasional rises to 25 lb. for the high pressure blast. The oscillating chutes for distributing the coal were untouched except for one adjustment to the right wing. The stoker was stopped 17 times, the total time when it was not in operation being 96.5 min. or about a third of the time. The hook was not taken from its supports, the grates were not shaken and not a shovel full of coal was put into the firebox by hand.

The return run was a local. There were six cars in the train at the start and one picked up later, the train then being 94 tons lighter than on the trip west. The elapsed time was 5 hr. 43 min., of which 1 hr. 10 min. were occupied at station stops, of which there were 33. The actual running time was 4 hr. 33 min., requiring an average running speed of 33.1 m.p.h.

Owing to the frequent stops the stoker required more attention than on the westbound trip. It was stopped 32 times and was idle for a total of 2 hr. 19.5 min., or 41 per cent of the elapsed time. The distributing chutes were adjusted nine times. The pressure at the high pressure nozzles varied from 15 lb. to 30 lb. and at the low pressure from 10 lb. to 30 lb. The steam pressure was maintained between 175 lb. and 200 lb., the average being 192 lb. and the safety valves did not open.

On leaving Bristol the fire bed was rough and humpy as

left from burning down over night after being banked, but within 10 min. after the start it was in a smooth, even condition. The fire hook was not used, no coal was fired by hand and the grates were not shaken. On arrival at Roanoke the fire was thin, level and burning evenly.

The coal used was prepared for stoker operation in accordance with the practice on the Norfolk & Western and was of the usual grade which contains about six per cent ash and 36 per cent volatile matter. The run was not unusual as the records of the locomotive show that for 28 consecutive runs no coal had been fired by hand, the hook had not been used and the grates had not been shaken.

I. C. C. Has Served Valuations on 184 Railroads

TENTATIVE VALUATIONS have been served by the Interstate Commerce Commission on a total of 184 properties up to December 31, 1921. Owing to the fact that most of them are small roads, few being over 1,000 miles long, the total mileage involved is only 26,191—less than 10 per cent of the total miles of railroad in the United States. The appended table shows the figures for final value in comparison with investment in road and equipment and capitalization as taken from statements published by the President's Conference Committee, dated September 21, 1921, and January 20, 1922. This table contains the figures for the valuations which have been served between July 20 and December 31, 1921, those served prior to July 20 having been abstracted in a previous table in the *Railway Age* of August 31, 1921, page 288.

TENTATIVE VALUATIONS
STATEMENT SHOWING ORIGINAL COST TO DATE; COST OF REPRODUCTION; ORIGINAL COST, PRESENT VALUE AND EXCESS COST OF LANDS, ETC.; "FINAL VALUE"; INVESTMENT IN ROAD AND EQUIPMENT AND CAPITALIZATION AS STATED IN THE VALUATIONS BY THE INTERSTATE COMMISSION

Date of valuation	Miles of road tracks	Miles of all	Carrier	"Final value"						Carriers' books	Accounting section's re-statement	Stock (common and preferred) accounts 751 to 753, as of date of valuation)	Debt (bonds, equipment trust and receivers' certificates)	Capitalization (general balance sheet account 701 as of date of valuation)
				Wholly owned	Owned but not used	Used but not owned	Total owned	Total used						
June 30, 1916	10 28	Peoria Ry. Terminal Co.	\$1,122,306	.....	\$4,049	\$1,122,306	\$1,126,355	\$2,686,110	\$2,676,160	\$1,000,000	\$2,344,000	.....	.....	.....
1916	21 26	Mount Hood R. R. Co.	507,032	.....	431	507,032	507,463	403,236	398,104	250,000	500,000	.....	.....	.....
1917	15 20	Gideen & North Island R. R. Co.	108,600	.....	22,306	108,600	130,906	97,689	.....	120,000	.....	.....	.....	.....
1915	1 2	Gulf Terminal Co.	565,148	.....	.....	565,148	565,148	641,975	575,576	46,000	600,000	.....	.....	.....
1916	24 29	Hoosac Tunnel & Wilmington R. Co.	641,864	.....	.....	641,864	641,864	582,928	.....	250,000	226,000	.....	.....	.....
1916	13 16	Kentwood, Greensburg & South Western R. R. Co.	134,423	.....	4,411	134,423	138,834	149,237	.....	100,000	6,791	.....	.....	.....
1915	3 5	Muncie Belt Ry. Co.	62,654	318	1,373	62,972	64,027	136,316	.....	50,000	25,000	.....	.....	.....
1916	23 96	Portland Terminal Co.	7,022,530	.....	1,074,174	7,022,530	8,096,704	5,138,223	223,512	1,000,000	4,752,000	100,000	100,000	100,000
1914	6 7	Conway Electric Street Ry. Co.	150,000	.....	1,163	150,000	151,163	234,305	.....	108,600	15,333	.....	.....	.....
1916	17 20	Fordyce & Princeton R. R. Co.	174,071	.....	.....	174,071	174,071	159,332	.....	150,000	6,798	.....	.....	.....
1916	14 15	The Garden City Western Ry. Co.	192,057	.....	42	192,057	192,099	133,796	.....	250,000	.....	.....	.....	.....
1916	18 23	Grafton & Upton R. R. Co.	496,780	.....	5	496,780	496,785	564,491	.....	.....	.....	.....	.....	.....
1915	60 78	Manistique & Lake Superior R. R. Co.	686,444	.....	.....	686,444	686,444	1,421,895	1,163,611	1,183,947	250,000	1,100,000	894,800	.....
1914	42 54	Montpelier & Wells River R. R.	1,750,000	.....	175,000	1,750,000	1,925,000	1,160,404	97,741	.....	250,000	.....	.....	.....
1916	2 5	Massachusetts Valley R. R. Co.	160,404	.....	.....	160,404	160,404	.....	.....	.....	.....	.....	.....	.....
1916	28 36	New Orleans, Natchez & Natchez Ry. Co.	368,769	.....	12,850	368,769	381,619	431,911	439,992	155,000	95,783	.....	.....	.....
1916	34 41	Ouachita & Northwestern R. R. Co.	354,944	.....	.....	354,944	354,944	546,528	558,864	303,000	73,863	Not reported	Not reported	Not reported
1916	7 7	Pine Bluff & Northern Ry. Co.	23,516	.....	16,242	23,516	39,758	.....	.....	.....	.....	.....	.....	.....
1915	26 28	The Pine Bluff Arkansas River Ry. Co.	153,840	.....	.....	153,840	153,840	353,074	751,761	745,445	200,000	155,174	.....	.....
1916	50 55	Roscoe, Snyder & Pacific Ry. Co.	558,394	.....	.....	558,394	558,394	751,761	751,761	745,445	150,000	157,511	.....	.....
1916	128 147	The St. Johnsbury & Lake Champlain R. R. Co.	2,851,673	518,000	72,447	3,369,673	2,924,120	4,719,604	4,524,089	3,606,849	3,440,435	.....	.....	.....
1916	33 43	Sugar Land Ry. Co.	484,983	.....	5,714	484,983	490,697	562,553	.....	109,400	400,480	.....	.....	.....
1916	24 29	Thornton & Alexandria Ry. Co.	241,411	.....	2,131	241,411	243,542	242,351	229,139	50,000	154,628	.....	.....	.....
1915	.. ..	The Shreveport Bridge & Terminal Co.	424,067	.....	.....	424,067	424,067	450,348	438,163	50,000	450,000	.....	.....	.....
1916	14 21	Kentwood & Eastern Ry. Co.	340,000	.....	282,528	310,000	622,528	435,888	412,346	100,000	.....	.....	.....	.....
1915	2 4	Union Freight R. R. Co.	429,833	.....	.....	429,833	429,833	436,529	436,529	287,000	60,000	.....	.....	.....
1915	697 899	St. Louis Southwestern Ry. Cr. of Texas	23,831,831	9	2,198,108	23,831,840	26,029,939	26,820,300	.....	2,750,000	24,840,936	.....	.....	.....
1916	106 122	Stephenville North & South Texas Ry. Co.	2,150,000	1,301	.....	2,150,000	.....	2,684,892	.....	138,300	2,612,956	.....	.....	.....
1915	24 26	Washington & Choctaw Ry. Co.	147,865	.....	.....	147,865	147,865	210,718	.....	200,000	.....	.....	.....	.....
1916	13 14	Sardis & Delta R. R. Co.	116,000	.....	.....	116,000	116,000	113,000	.....	100,000	.....	.....	.....	.....
1915	4 11	Denton Co. Dallas Terminal Ry. & Union	1,187,810	72,983	.....	1,260,793	1,187,810	946,980	127,466	100,000	936,745	10,000	137,207	.....
1916	10 13	Monroe R. R. Co.	119,000	.....	928	119,000	119,928	202,044	79,802	30,000	95,482	.....	.....	.....
1916	5 7	Milledgeville Ry. Co.	70,551	.....	.....	70,551	70,551	.....	.....	100,000	2,300,300	100,000	30,000	.....
1916	2 9	The Wichita Union Terminal Ry. Co.	2,070,911	.....	.....	2,070,911	2,070,911	1,999,828	1,993,297	100,000	100,000	.....	.....	.....

Date of valuation June 30, Year	Owned, used and not used	Miles of all road tracks	Carrier	"Final value"						Investment in road and equipment (general balance sheet account 701 as of date of valuation)	Capitalization (general balance sheet accounts 751 to 753, 755 to 757, as of date of valuation)
				Wholly owned and used	Owned but not used	Used but not owned	Total owned	Total used	Carriers' stocks		
1915	622 841	{ St. Louis Southwestern Ry. Co.	26,716,924	75,500	2,355,555	26,792,424	29,072,479	67,430,328	36,249,750	56,189,250
	63 53	Central Arkansas & Eastern R. R. Co.	600,000	.....	600,000	.....	1,070,140	995,140	150,000	1,085,000
1915	37 43	Paragould Southeastern Ry. Co.	424,000	.....	424,000	.....	518,148	479,824	100,000	512,758
	13 59	Gray's Point Terminal Ry. Co.	1,321,000	.....	1,321,000	.....	1,844,653	1,818,058	500,000	1,344,653
1915	42 49	Kankakee & Seneca R. R. Co.	800,000	25,645	800,000	825,645	703,368	704,968	10,000	842,400
	231 271	Green Bay & Western R. R. Co.	5,298,582	14	5,298,582	5,298,596	10,279,344	10,100,000
1916	35 49	The Keweenaw, Green Bay & Western R. R. Co.	1,289,193	.....	1,289,193	1,289,193	1,279,512	.....	664,950	408,000
	33 39	The Ahnapee & Western Ry. Co.	676,408	.....	676,408	978,437	.....	.....	439,500	425,000
1916	96 119	Jonesboro, Lake City & Eastern R. R. Co.	1,117,320	36,657	1,117,328	1,153,985	1,682,600	1,228,612	600,000	694,935
	36 39	Chicago & Wabash Valley Ry. Co.	455,500	455,500	455,500	592,308	350,000	662,853
1917	19 25	Clarendon & Fitchford R. R. Co.	490,000	212	490,000	490,212	427,657	270,000
1915	923 1,278	Mobile & Ohio R. R. Co.	43,279,997	49,818	1,182,443	43,329,815	44,462,440	45,897,658	39,165,878	6,016,800	31,791,000
	14 15	Warrior Southern Ry. Co.	770,000	.....	770,000	.....	1,081,172	776,406	300,000	781,172
1916	580 747	Bangor & Aroostook R. R. Co.	21,500,000	3,850,084	21,500,000	25,350,084	23,363,164	3,448,600	20,801,000
	58 126	Northern Maine Seaport R. R. Co.	3,850,000	.....	3,850,000	.....	5,151,628	.....	420,000	4,720,000
	739 923	*Van Buren Bridge Co.	77,500	77,500	77,500	77,500	7276,634	1250,000	1250,000
1916	.. 2	Florida East Coast Ry. Co.	46,931,947	714,196	46,931,947	47,546,143	48,207,859	45,185,902	10,000,000	37,300,000
	5,355 7,338	Atlantic & East Coast Terminal Co.	1,200,000	.....	1,200,000	.....	603,503	.....	25,000	578,503
	162 186	The Chicago, Rock Island & Pacific Ry. Co.	251,809,983	252,937	70,467,613	252,062,920	322,277,596	235,867,019	.....	74,482,523,232,804,900
978 1,348	3,464,958	Keokuk & Des Moines Ry. Co. . . . .	.....	.....	3,464,958	.....	6,720,253	.....	4,125,000	2,750,000
	385 465	Choctaw, Oklahoma & Gulf R. R. Co.	35,500,000	328,585	35,500,000	.....	32,357,599	.....	15,827,500	15,865,482
	193 234	Rock Island, Arkansas & Louisiana R. R. Co.	10,750,000	.....	10,750,000	.....	14,864,781	.....	1,768,000	13,446,322
1915	14 15	St. Paul & Kansas City Short Line R. R. Co.	8,400,000	.....	8,400,000	.....	12,781,153	.....	50,000	12,629,045
	21 23	Rock Island & Dardanelle Ry. Co. Rock Island, Stuttgart & Southern Ry. Co.	215,000	.....	215,000	.....	.....	.....	100,000	100,000
	.. 4	Rock Is'nd & Memphis Terminal Ry. Co.	213,000	.....	213,000	.....	178,917	.....	300,000	190,266
47 69	700,000	The Peoria & Bureau Valley R. R. Co.	1,650,000	.....	1,650,000	.....	1,566,600	.....	1,500,000	None
62 70	700,000	White & Black River Valley Ry. The Chicago, Rock Island & Gulf Ry. Co.	13,212,305	621,101	362	13,833,406	13,212,667	17,374,564	469,000	17,317,742
466 561	48,750	Morris Terminal Ry. Co.	23,250	.....	425,000	48,750	52,320	.....	50,000	2,207
	1 1	Chicago, Rock Island & Pacific R. R. Co. . . . .	.....	.....	425,000	.....	1,226,367	.....	562,225	666,000
1916	18 22	Marion & Rye Valley Ry. Co.	317,177	30,290	317,177	347,467	351,241	359,519	100,000	174,500	
	Angola Transfer Co.	160,000	160,000	160,000	182,498	75,000	None
1916	10 11	Augusta Union Station Co.	193,649	51,682	193,649	245,331	237,554	222,513	75,000	225,000	
	14 16	The Cape Charles R. R. Co.	143,412	.....	143,412	143,412	129,350	.....	131,000	None
1916	27 30	Chesapeake Western Ry. Chesapeake & Western R. R. Co.	425,000	425,000	343,837	768,837	1,503,023	1,027,498	1,419,600	1,419,000	
	1 4	Muncie & Western R. R. Co.	41,900	600	41,900	42,500	87,688	85,883	50,000	None	
1915	111 274	New York, Philadelphia & Norfolk R. R. Co.	10,976,927	34,245	10,976,927	10,976,927	10,533,162	10,926,581	2,500,000	4,300,000
	3 4	Rosslyn Connecting R. R. Co.	230,000	230,000	264,245	96,672	100,000	49,118
1916	104 116	Sandy River & Rangeley Lakes R. R. Co.	1,359,427	1,359,427	1,359,427	1,180,408	340,000	837,000
	12 12	Union Plain & White Plains R. R. Co.	100,500	100,500	100,500	92,284	32,500	96,650
1916	341 432	Massillon Belt Ry. Co.	19,123	19,123	19,123	52,632	50,000	None
	4 10	Charleston & Western Carolina Ry. Co.	10,402,096	4,300	106,931	10,406,396	10,509,027	8,279,563	8,447,986	1,200,000	5,700,000
1915	1 13	The Baltimore & Sparrow's Point R. R. Co.	349,237	80,000	349,237	429,237	429,237	183,563	236,753	150,000	None
	.. ..	The Boston Terminal Co.	19,910,500	.....	19,910,500	19,910,500	15,458,562	15,318,520	500,000	14,500,000
	509 749	The East Jersey R. R. & Terminal Co.	359,390	116,500	359,390	475,890	388,150	257,000	None
	65 88	Chicago, Indianapolis & Louisville Ry. Co.	27,270,223	2,484	4,225,135	27,272,707	31,495,358	37,225,990	36,424,870	15,489,000	18,221,930
1915	9 16	Indianapolis & Louisville Ry. Co.	1,900,000	.....	1,900,000	.....	1,938,060	1,920,973	100,000	1,839,903
	51 59	Indiana Stone R. R. Co.	555,000	.....	555,000	.....	431,909	.....	15,000	416,909
1916	9 10	Paris and Mt. Pleasant R. R. Co.	813,771	.....	813,771	813,771	746,726	746,405	75,000	600,000
	11 12	Pickens R. R. Co.	126,426	126,426	126,426	114,334	110,494	63,000	52,000
1916	.. 13	Virginia Southern R. R. Co.	127,551	127,551	127,551	153,327	25,000	18,000
	1 5	Rock Island-Frisco Terminal Ry. The Elwood, Anderson & Lapelle R. R. Co.	2,006,781	29,207	82,893	2,035,988	2,089,674	3,876,681	500,000	3,390,000
1916	1 3	The Lake Erie & Fort Wayne R. R. Co.	108,910	179	108,910	109,089	136,411	119,928	50,000	.....
1918	1 2	L'Anguille River Ry. Co.	37,626	4,133	37,626	41,759	110,859	97,179	73,750	.....
1916	3 3	Lexington Terminal R. R. Co.	12,500	4,038	12,500	16,538	18,592	13,250	10,000	22,582	
1917	24 27	Little Rock, Maumelle & Western R. R. Co.	28,500	.....	28,500	28,500	10,399	.....	6,600	8,993
	300,530	Louisville & Jeffersonville Bridge Co.	24,632	.....	300,530	325,162	578,308	388,204	160,000	231,494
1915	4 22	2,977,216	.....	2,977,210	2,977,210	5,797,953	5,425,242	1,425,000	4,500,000	
1916	10 11	Nelson & Albemarle Ry. Co.	141,825	118,135	141,825	259,960	388,156	.....	250,000	135,000
1916	12 38	The Norfolk & Portsmouth Belt Line R. R. Co.	971,881	39,000	971,881	1,010,881	949,277	982,928	63,309	423,000	
	18 22	Norwood & St. Lawrence R. R. Co.	533,078	895	533,078	533,973	632,780	642,215	250,000	196,000	
1917	40 44	The Pecos Valley Southern Ry. Co.	373,409	263	373,409	373,672	476,651	475,796	45,000	400,000	
	.. 8	The Rhode Island Co. . . . .	.....	310,000	.....	310,000	203,800	305,092	133,800	70,000
1916	1 11	The Narragansett Pier R. R. Co.	500,750	.....	500,750	500,750	12,166,969	.....	1,000,000	1,856,969
1915	5 12	*Sault Ste. Marie Bridge Co.	3,182,660	.....	3,182,660	3,182,660	3,250,496	.....	50,000	3,220,046
	29 32	The Tuckerton R. R. Co.	503,946	.....	503,946	503,946	698,559	648,550	552,242	100,000
1916	10 12	Waupaca-Green Bay Ry.	114,201	.....	114,201	114,201	136,000	.....	61,400	69,000

*Road lies partly in Canada. Only property in U. S. inventoried.

†Figures for entire property both in Canada and United States.

Note 1.—Unit prices used in estimating cost of reproduction new and cost of reproduction depreciation are those termed normal prices as of June 30, 1914.

Note 2.—Items in "Capitalization" column should not be totaled, as some duplications are present.

Note 3.—Where a number of carriers are included in one valuation docket the details of the property "Used but not Owned" are not in all cases set up in the name of the owner, but the total amount is included in the totals for this classification.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading continues to increase, according to the weekly report of the Car Service Division of the American Railway Association. For the week ended February 4 the number of cars loaded with revenue freight was 753,886, an increase of 10,158 as compared with the preceding week and of 54,168 as compared with the corresponding week of 1921.

This was 8,974 less than for the corresponding week of 1920. Coal and merchandise loading showed the large increases.

There was a marked decrease in the car surplus for the week ending January 31, 1922, the total standing at 330,681 cars, or 65,511 cars less than the figure of the previous week.

Of this surplus, 132,174 are box cars, a decrease of 26,925 cars, and 104,386 gondolas, a decrease of 79,613 cars, from the week ending January 23.

Loading of merchandise and miscellaneous freight amounted to 429,705 cars, an increase of 9,295 over the preceding week and 26,944 more than were loaded during the same week last year. It was, however, 9,212 less than were loaded during the corresponding week in 1920.

Coal shipments totaled 185,151 cars, a gain of 4,185 over the week before. This was 27,597 more than were loaded

during the corresponding week in 1921 and 8,640 more than the corresponding week in 1920.

Forest products also showed a gain over the week before of a total of 2,831 cars, the total for the week being 50,204 cars. It was, however, approximately 2,500 under the same week last year and about 10,000 below the corresponding week in the year 1920.

Coke shipments totaled 7,844 cars, an increase of 342 cars over the week before, but 1,678 below one year ago. Ore, with a total of 4,015, was eight in excess of the previous week. During the same week last year, the total was 8,480 cars.

Shipments of grain and grain products amounted to 48,969 cars, a decrease of 1,911 compared with the previous week, but an increase of 11,948 over the same week last year, and 14,376 greater than the same week in 1920. Live stock shipments also decreased 4,592 cars compared with the week before, bringing the total to 27,998, which was 3,608 below the same week in 1921, and 2,263 below the same week in 1920.

Compared by districts, all showed increases over the week before in the loading of all commodities except the North Western, Central Western and South Eastern Districts, while the North Western and South Western were the only ones to show reductions compared with the corresponding week in 1921.

REVENUE FREIGHT LOADED, WEEK ENDED SATURDAY, JANUARY 28, 1922

District	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded		
										This year, 1922	1921	Corresponding year, 1920
Eastern	1922	8,376	3,046	41,795	1,684	5,361	633	58,639	59,323	178,857	.....	.....
	1921	5,801	3,671	45,395	1,265	8,083	1,019	44,695	51,198	.....	161,127	188,189
Allegheny	1922	2,656	3,219	48,390	3,702	2,793	682	43,389	42,764	147,595	.....	.....
	1921	2,301	3,532	48,088	5,618	3,242	2,226	35,752	46,833	.....	147,592	167,970
Pocahontas	1922	240	75	23,060	185	1,050	63	5,252	2,862	32,787	.....	.....
	1921	211	109	17,476	394	1,243	99	4,303	2,523	.....	26,358	31,962
Southern	1922	4,614	2,307	26,420	465	13,581	476	35,854	28,030	111,747	.....	.....
	1921	3,655	2,034	23,019	534	13,009	1,142	32,510	31,806	.....	107,709	125,372
Northwestern	1922	14,525	9,797	10,980	1,073	13,850	457	23,905	25,461	100,048	.....	.....
	1921	11,064	9,353	5,814	1,284	16,592	1,044	23,302	26,337	.....	94,790	108,424
Central Western	1922	15,374	11,822	25,023	2,38	4,412	830	29,223	30,771	117,693	.....	.....
	1921	11,747	11,809	18,790	321	3,871	2,178	28,012	29,214	.....	105,942	120,341
Southwestern	1922	5,095	2,324	5,298	155	6,326	866	15,204	19,733	55,001	.....	.....
	1921	5,185	1,869	4,848	97	6,446	420	15,815	23,407	.....	58,087	61,074
Total all roads	1922	50,880	32,590	180,966	7,502	47,373	4,007	211,466	208,944	743,728	.....	.....
	1921	39,964	32,377	163,430	9,513	52,486	8,128	184,389	211,318	.....	701,605	803,332
	1920	36,504	34,159	188,913	9,760	58,081	11,701	142,627	321,587	.....	.....	803,332
Week Ended:												
January 28	1922	50,880	32,590	180,966	7,502	47,373	4,007	211,466	208,944	743,728	701,605	803,332
January 21	1922	52,181	31,961	164,091	7,267	50,328	4,269	213,642	214,536	738,275	708,658	804,866
January 14	1922	50,187	36,165	159,245	7,258	48,490	4,451	205,545	209,536	720,877	715,855	840,524
January 7	1922	40,673	25,658	136,982	7,008	41,071	4,321	171,786	178,493	605,992	697,641	830,673
December 31	1921	30,075	24,567	105,662	6,424	31,406	4,883	170,061	157,956	531,034	602,368	745,446

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, FEBRUARY 4, 1922

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Merchandise	Miscellaneous	Total revenue freight loaded		
										This year, 1922	1921	Corresponding year, 1920
Eastern	1922	9,367	2,706	46,770	1,817	5,983	610	62,442	62,113	191,808	223,511	216,139
	1921	5,465	3,372	44,821	1,297	8,461	676	46,208	53,655	163,955	170,556	186,561
Allegheny	1922	2,615	2,763	51,819	3,813	2,658	556	44,442	44,639	153,305	106,453	101,179
	1921	1,980	3,188	46,911	5,651	2,973	2,752	37,052	44,586	145,093	147,875	108,214
Pocahontas	1922	244	65	23,028	201	1,064	55	5,275	2,863	32,795	.....	11,448
	1921	157	126	14,941	366	1,284	85	4,588	2,675	24,222	31,410	13,265
Southern	1922	4,576	2,216	25,433	492	14,489	638	36,285	30,178	114,307	.....	18,119
	1921	3,400	2,007	22,852	584	12,864	1,315	34,653	31,477	109,152	123,329	60,403
Northwestern	1922	12,228	8,017	9,939	1,072	14,533	482	24,765	24,496	95,532	46,464	62,224
	1921	10,635	9,232	6,005	1,256	16,964	1,010	23,501	27,204	95,807	112,563	43,544
Central Western	1922	15,049	10,033	22,894	267	4,448	878	29,740	28,502	111,811	44,904	42,908
	1921	10,514	11,743	16,990	303	3,786	2,232	28,305	30,248	104,121	114,632	67,028
Southwestern	1922	4,890	2,198	5,268	182	7,029	796	15,622	18,343	54,328	43,148	43,092
	1921	4,870	1,938	5,034	65	6,442	410	15,874	22,735	57,368	62,315	55,298
Total, all roads	1922	48,969	27,998	185,151	7,844	50,204	4,015	218,571	211,134	753,886	556,331	492,773
	1921	37,021	31,606	157,554	9,522	52,774	8,480	120,181	212,580	699,718	492,773	603,454
	1920	34,593	30,261	176,511	10,125	60,356	11,917	138,833	300,084	762,680	.....	.....
Increase compared	1921	11,948	.....	27,597	.....	.....	28,390	.....	54,168	.....	43,558	.....
Decrease compared	1921	.....	3,608	.....	1,678	2,570	4,465	.....	1,446	.....	.....	.....
Decrease compared	1920	.....	14,376	.....	8,640	.....	79,738	.....	.....	.....	.....	.....
February 4	1922	2,263	2,281	10,152	7,902	.....	88,950	8,794	.....	67,123	.....	.....
January 28	1922	48,969	27,998	185,151	7,844	50,204	4,015	218,571	211,134	753,886	699,718	762,680
January 21	1922	50,880	32,590	180,966	7,502	47,373	4,007	211,466	208,944	743,728	701,605	803,332
January 14	1922	50,187	36,165	159,245	7,258	48,490	4,451	205,545	209,536	720,877	715,855	490,634
January 7	1922	40,673	25,658	136,982	7,008	41,071	4,321	171,786	178,493	605,992	697,641	840,524

Division Accounting—An Operating Viewpoint

The Centralized and Decentralized Plans Contrasted—Methods Worked Out on the New Haven

By J. E. Slater

Special Assistant to General Manager, N. Y., N. H. & H.

PART II

THE VALUE of any plan depends upon the results which it produces. What then are the results of the plan chosen by the New Haven—the decentralized plan under the jurisdiction of the accounting department? Does it fulfill the requirements which have been previously mentioned? Does it provide accurate, current data on division costs, does it provide detailed information on the various phases of division performance, does it give information not called for as well as regular statements required? A brief summary of the statements issued by division accountants will answer most of these questions.

The Statements Issued

On the New Haven most of the employees are paid weekly, only the officers and subordinate officials being paid semi-

Analysis of Transportation Man Hours

The analysis of transportation man hours is a statement of man hours in transportation service on each division, subdivided into the various classes as prescribed by the Interstate Commerce Commission. This statement is issued six or seven days after the end of the payroll week. It has proven of great value during the last year in the reduction of expenses. During the last week in each month, the general manager, general superintendents and superintendents meet to discuss ways and means of effecting economies and improving performance. With the transportation man hour statement for the first two or three weeks of the month as a basis, a standard of man hours for the succeeding month is established. This standard is then compared with the actual performance each week in the succeeding month. The

NEW YORK, NEW HAVEN AND HARTFORD RAILROAD COMPANY								
STATEMENT OF TRAIN LOAD, SPEED AND COSTS FOR SLOW FREIGHT SERVICE, DISTRICTS;								
NEW HAVEN-WORCESTER; NEW HAVEN-PROVIDENCE; MIDWAY-WORCESTER								
WEEK ENDING JAN. 5th, 1922.								
<u>NEW HAVEN-WORCESTER</u>								
No. of Trains	Train Miles	Gross Ton Miles	Gross Ton Miles Per Train Mile	Hauling out of orig. Terminal	Average Speed	Gross Ton Miles Per Train Hour	Cost of Wages Per Train Mile	Cost of Wages Per 1000 Gross Ton Miles
East 10	1211	2178448	1799	1608	11.64	20,947	43.3	24.1
West 12	1458	2190911	1503	1705	11.75	17,659	40.1	26.7
TOTAL 22	2669	4369359	1637	1807	11.71	19,164	41.6	25.4
<u>NEW HAVEN-PROVIDENCE</u>								
East 12	1372	3902873	2845	2819	11.72	33,358	50.6	27.8
West 16	1808	2789388	1543	2631	12.47	19,287	51.6	35.4
TOTAL 28	3180	6692261	2105	2712	12.14	25,545	51.2	24.8
<u>MIDWAY-WORCESTER</u>								
East 8	592	771343	1303	1765	9.40	12,244	52.7	40.5
West 7	518	693609	1339	1667	12.05	16,150	40.5	30.2
TOTAL 15	1110	1464952	1320	1719	10.47	13,820	47.0	35.6

Statement of Train Load, Speed and Costs for Slow Freight Service

monthly. On that account, most of the statements are issued weekly. The following are the most important:

- (1) Analysis of payrolls and performance.
- (2) Analysis of transportation man hours.
- (3) Analysis of non-productive time and constructive allowances.
- (4) Analysis of train tonnage, speed and cost of through freight service by districts.

The weekly payroll analysis is a brief summary of payrolls and performance on the division. It contains no innovations, but is designed to give operating officers, (1) a summary of labor expenses, subdivided between departments and classes of service; (2) a comparison of the station, yard and train performances with the costs of these services as a whole; (3) a brief explanation of increases and decreases in payrolls as compared with previous periods. This analysis is issued from seven to ten days after the end of the payroll week.

necessity for this close check has resulted in the discovery of means to effect further reductions. The same plan followed by the general manager with reference to transportation service is also followed in the maintenance and mechanical departments. This budget system in both maintenance and transportation departments has been used successfully on other railroads, the important difference on the New Haven being the use of man hours instead of expense.

Non-Productive Time and Constructive Allowances

The statement of non-productive time and constructive allowances is issued within ten days after the end of the payroll week. It is divided into two parts. The first section covers items which are primarily matters of schedule and policy and not subject to the control of local operating officers. Among the important items are payments for vacations and holidays, safety meetings, bonus hour paid to me-

chanical forces in shops, engine and train crews learning road, and relief days for supervisory forces. This part of the statement is valuable chiefly in showing the actual cost of certain schedule rules which provide payment where there is no work.

The second section covers items which are partly or wholly under the control of supervisory officials. Among the important classes are payments for arbitrary allowances for switching by road crews, deadheading, terminal delay, hosing by road crews and guarantee paid passenger crews. These items are closely watched from week to week by division and general officers and material reductions have been made as a result of practices which the statement disclosed.

Analysis of Through Freight Service By Districts or Runs

The three statements mentioned above are based on division payrolls and the charges made against each division are those carried on that division's payroll. It will be recalled that the division payroll, as far as train and engine service is concerned, may extend beyond the confines of that

Gross ton miles per train hour,
Cost of wages per train mile,
Cost of wages per 1,000 gross ton miles.

This statement is also of particular value in that it furnishes an index of the relative effect of trainload and speed on cost. The importance of properly balancing tonnage and speed is especially great on the New Haven, where the frequency of passenger service makes necessary adequate speed in freight service.

In addition to this analysis of through freight service, the division accountants furnish superintendents with statements of local freight service, by runs. An important consideration in connection with local freight service is overtime and the statement provides an analysis of this factor.

The weekly statements are limited to analysis of labor charges. The question will be asked as to how charges for the important elements of material and fuel are analyzed. These appear in the monthly statement, though fuel is analyzed in greater detail by a method later described.

Monthly Statement in Three Sections

The monthly statement is divided into three sections: (1) maintenance of way expenses; (2) maintenance of equip-

STATEMENT OF NON-PRODUCTIVE TIME AND CONSTRUCTIVE ALLOWANCES OF TRANSPORTATION DEPARTMENT WEEK ENDING — JANUARY 5, 1928														
Classification of Causes	New York	New Haven	Waterbury	Banbury	Hartford	New London	Lines West	Providence	Boston	Old Colony	Midland	Total Lines East	Total New Haven	C.N.E. Ry.
Safety & Fuel Meetings	\$3.86				11.77		45.03	2.11	12.15		4.86	-	45.05	
Administrative Costs					5.80		27.14	44.54	31.60	32.65	44.58	18.54	127.25	129.24
Quality Losses	27.42	11.60					4.64							4.64
Examinations		4.64												
50 Minute Lunch Period	401.32	450.98	98.65	27.54	268.09	89.80	942.56	345.98	206.97	225.15	914.74	983.43	8,357.41	110.87
Half Holiday	316.34	259.39	55.45	10.75	75.75	47.76	430.15	205.37	19.31	161.10	284.31	871.14	1,315.28	18.41
Half Holiday	1,615.45	654.30	325.50	125.49	629.64	182.49	1,907.15	932.38	111.09	475.91	1,442.12	2,029.98	8,379.87	97.47
Sick Leave		5.94					25.88							
Vacations	4.67	32.04		9.04				41.08						
Relief Days for Supv. Forces	69.17	164.10		27.18			46.65	47.05	280.90	61.98	80.54	104.19	316.01	576.08
Miscellaneous	8.87	21.00		25.15	18.56		63.71						163.15	255.41
Sub-Total	2,807.58	1,802.31	530.51	192.10	364.04	304.04	3,795.75	1,009.70	890.88	932.47	2,119.50	5,942.38	11,046.61	205.88
Hold away from Home Terminal							8.95						8.95	131.78
Men Called and Not Used							4.45						27.76	37.76
Irregular Calling & Assignment							5.84						14.60	20.44
Trains not ready for use late													2.20	3.20
Switching at terminals where Id. Crews Ex.	137.77	15.25	41.80	35.04	64.22	25.80	177.95	55.22	147.55	69.15	41.60	316.47	612.19	12.70
Other Switching Allowances													126.53	126.53
Third Crews working on Road	9.85	58.54	16.61		75.82	10.41	138.18	118.58		37.57	1.49	187.84	302.07	
Firemen throwing switches	50.66		2.90				2.90							58.55
Locomotives by Road Crews	40.65	19.62	15.48				50.54		12.58	6.02	42.54	7.92	25.14	25.14
Piloting													6.32	126.78
Terminal Delay	48.85	80.70	1.64				14.87	14.87		5.78	126.78	183.08	147.95	
Deadheading	399.17	510.98	42.41	329.54	426.67	10.68	69.19	88.57	88.57	5.78	1.69	94.97	209.99	
Guaranty	80.48	140.65	99.84		115.84	94.76	317.90	327.16	321.93	285.57	111.68	1,026.09	3,945.84	299.55
Men Called back at end of day's work													651.99	148.88
Miscellaneous	8.80		18.85				2.81	31.15		40.44	84.49	42.70	107.85	135.98
Sub-Total	716.75	880.43	240.00	380.37	397.47	358.81	3,795.75	669.55	654.70	828.50	578.95	5,826.97	5,455.87	101.79
GRAND TOTAL	3,233.88	2,490.94	778.61	572.02	1,656.28	789.05	6,296.70	2,279.55	1,235.85	1,471.97	2,492.22	7,479.30	17,001.88	318.67
Total Payrolls (Yard & Head Crews)	49,044.00	25,254.28	8,940.15	8,909.98	18,992.77	11,660.58	78,227.78	29,317.05	35,444.22	16,999.39	15,350.69	93,611.41	205,903.95	19,795.10
Percent to Payrolls	1.658	5.158	1.584	4.376	2.858	2.622	2.948	1.955	1.955	3.130	2.693	2.945	2.548	4.104

Note: Percent of Payrolls represents percentage of the second group of items less "Guaranty" to total payrolls of yard and road crews.

Statement of Non-Productive Time and Constructive Allowances of Transportation Department

division. This situation was the only important operating factor arguing for the centralized plan of division accounting. In order to avoid this difficulty and to provide accurate data for checking the performance of specific trains, a statement is issued weekly, analyzing the performance and cost of through freight train service by districts or runs. This statement ignores division lines, but covers well defined districts within which engine and train crews operate. Each division accountant issues a statement covering designated runs and his statement is forwarded to each superintendent interested in those runs. Where it is desired, the information is further subdivided as between the divisions over which the run is made. The eventual plan will provide for complete separation in this manner in order that train wages on a division may be applied to the ton miles and train miles of that division. For the present, however, this statement furnishes adequate information to interested officers.

The statement shows for each run, separately by directions, the following information:

Number of trips,
Train miles,
Gross ton miles,
Average trainloads,
Average speed,

ment expenses; (3) transportation expenses. The first section shows for the division the total charges to each primary account, subdivided into labor, material and other charges. This permits a close check against the maintenance of way budget, both as to labor and material. The statement also shows a summary of total labor charges, subdivided into roadway forces, bridge and building forces, signal and other forces. Data are also given as to work performed, including ties and rail laid, signals maintained, etc.

The mechanical group of expenses covers charges to primary accounts and, in addition, includes information as to locomotives repaired, running and classified, freight and passenger cars repaired, etc. In addition to this data, division accountants subdivide charges among types of engines and as between running and classified repairs. This information, however, cannot be available on this statement since charges must be consolidated and a system statement issued comparing all the repairs to each type of engine with the mileage made.

The section of the statement covering transportation expenses shows by services, rather than by accounts, the charges made. Station, yard and train services are each divided between passenger and freight service. The miscellaneous items such as charges to signal and interlocker

operation, crossing protection, etc., are shown separately. In addition to the detail of expenses, there is shown general data as to performance. This includes the gross ton miles, train miles (passenger and freight) made on the divisions, the number of tons of L. C. L. freight handled at the larger stations, the tons per man hour and the cost per ton at the same points, the cars handled per engine hour and the cost per car in the more important yards; the ton miles per train hour in freight train service; the cost per 1,000 gross ton miles for freight train expense and for all freight transportation expenses.

Monthly Statement a General Summary

This monthly statement is designed to provide a general summary of the performance for the month. The detailed analyses each week have furnished proper bases for the checking of performance and cost. The monthly statement pretends to do nothing more than show the net result of the efforts made during the month. It is issued on the fifteenth of the following month and is thus reasonably close to the

the division accountant sends daily a report of poor performances to interested officers who check the engine in order to determine the cause of the bad record.

This completes the current information regularly reported to operating offices. This in no way includes all statistical data compiled, but includes only the regular statements issued by division accountants. Moreover, most of the data has been developed with division accounting.

As stated before, however, the greatest value should come from information not specifically called for. In discussing this aspect of the situation, it is difficult to be specific. The amount of information furnished depends largely upon the point of view and experience of the division accountant. Consequently, the extent of the detail furnished varies with division accountants. Cases have been discovered of excessive amounts of overtime paid, and excessive amounts paid for various allowances provided by the schedule. A detailed analysis of the non-productive time statement, showing the specific moves which necessitated the payments, has resulted in corrective measures being taken. Much has been

STATEMENT OF NON-PRODUCTIVE TIME AND CONSTRUCTIVE ALLOWANCES OF MAINTENANCE OF WAY & MECHANICAL DEPARTMENTS
WEEK ENDING - JANUARY 5th, 1922.

Classification of Causes	New York		Total Lines West		Total Lines East		Shops Mechanical	Total New Haven.		C. N. E. Ry.	
	M. of W.	Mech.	M. of W.	Mech.	M. of W.	Mech.		M. of W.	Mech.	M. of W.	Mech.
Safety & Fuel Meetings			-	4.32	-	2.26		-	6.58		
Attending Court			-	-	-	-		-	-		
Qualifying			-	-	-	-		-	-		
Examinations			-	-	-	-		-	-		
20 Minute Lunch Period	105.85	-	75.14	-	41.65	26.35		-	248.97		69.80
Bonus Hour	110.26	-	475.69	-	633.04	109.02		-	1328.01		85.68
Half Holiday	24.02		40.68	24.93	44.24	15.61	57.75	108.94	98.19	19.55	3.75
Holiday	65.32		604.08	118.49	228.11	169.77	535.28	891.51	763.52	74.78	101.88
Sick Leave			2.34	112.89	-	-		2.84	112.89		28.97
Vacations			-	-	-	-	10.45	-	10.45		
Relief days for Supv. Forces	183.47	-	105.48	-	141.79	55.55		-	466.29		40.87
Miscellaneous			26.55	7.44	29.76	11.80	9.02	56.81	28.26		19.07
Total	89.34	399.58	673.65	924.38	296.11	955.82	805.58	1059.10	5085.16	94.58	849.18

Statement of Non-Productive Time and Constructive Allowances of Maintenance of Way and Mechanical Departments

period covered. It includes all charges properly made against each division's performance, and subject to the authority of the division staff. It does not include overhead items in which the local organization has no concern. It is a monthly summary of the division's activities and cost of its performance.

Check on Fuel Performance of Individual Locomotives

Mention has been made above of the specific question of fuel. In order to provide a close check of fuel performance, arrangements were made by which each division accountant keeps a check on the performance of individual engines. The car accountant reports to each division accountant the train miles, gross ton miles, time on road and terminal delays of individual freight trains terminating on his division. The division accountant shows against this performance the fuel consumed on the run, this being measured by the fuel necessary to fill the tender at the end of the run. When fuel is taken enroute, report is made to the division accountant of the amount taken. In the office of each division accountant, is a record card for each engine, showing by days the services performed, the fuel consumed and the pounds consumed per 1,000 gross ton miles. These cards are used by road foremen of engines, fuel supervisors and others checking the performance of individual locomotives. The information on the card is available from three to five days after the run is made. In addition to the card record

done in this direction, but on all railroads this field, almost unexplored, awaits the skill and initiative of division accountants.

Special Studies and Investigation

There is still another field in which the local division accountants can be of the greatest value. This is in the field of special studies and investigation. Experience has repeatedly shown that studies of this kind are much more reliable and satisfactory as to results when they are made under the direction of local representatives who are familiar with the various details of operation in their respective territories, than when conducted by representatives sent out from the central office. Moreover, it has also been shown that these studies are more satisfactory when they are conducted by those whose principal business it is to perform work of this kind than to have it done by various local operating men who are not accustomed to this character of work.

As an example of this sort of work, the New Haven had investigations made of the cost of cleaning fires at some of the more important engine houses. This study was made covering a period of four weeks, involving a time study of the work of all fire cleaning gangs. It required no additional expense, and produced results which quickly justified the trouble in making the study. The work was done through co-operation of the mechanical department and

division accountants and was very satisfactorily worked out.

This field of special studies and analyses is a very broad one and can be more satisfactorily developed by division accountants working on the decentralized plan than by any other method known to the writer.

The net result of the New Haven experiences with the decentralized plan under accounting department jurisdiction has been a success. Much remains to be done to perfect the methods. A large amount of information remains to be

compiled along new lines. Nevertheless, the results have shown that with close co-operation between operating and accounting departments, much can be done otherwise impossible of accomplishment. Moreover, these results can be obtained with relatively slight additional expense. Division accounting opens a great field of study, not only to accountants, but to operating officers. The railroads will do well to push as far and rapidly as possible the further analysis and checking of expenses and costs which division accounting provides.

Labor Board Issues New Rules for Signalmen

Overtime Provisions Materially Changed—Large Part of National Agreement Perpetuated

PUNITIVE OVERTIME for signal department employees will, after February 16, be paid after the tenth hour of consecutive service instead of after the eighth hour, as is now the practice under the existing signalmen's national agreement, according to a new code of rules handed down by the Railroad Labor Board on February 13. The changes which have been made in the rules governing the working conditions of these employees are very similar to those recently made in the working conditions of maintenance-of-way employees and contain relief not so much from the national agreements against which the carriers have directed their fight but from a few of the more restricted rules which necessitate the payment of large sums of money for which no service is received.

The national agreement with the signalmen, formed during the closing days of federal control, contained 78 sections or rules. Of these, 43 are perpetuated in the new code announced by the Labor Board, 16 are remanded to the individual carriers and their own signal employees for settlement, one is eliminated, six are automatically changed by the revision of other rules or by new conditions which did not exist at the time the national agreement was made, and only 12, mostly rules covering the payment of punitive over-time, are changed.

The punitive overtime clause of the signalmen's national agreement stated that "overtime hours, continuous with regular working hours, shall be computed on the actual minute basis and paid for at the overtime rate." The new ruling approved by the Labor Board reads briefly, "overtime will be paid on the actual minute basis at pro-rata rate for the ninth and tenth hours of continuous service, exclusive of meal periods, and thereafter at rate of time and one-half."

Pro Rata Rates for Sunday and Holiday Work

Signal department employees regularly assigned to work on Sundays and holidays, will be compensated on the same basis as on week days, according to another clause of the new code. The signalmen's national agreement provided that "time and one-half time will be paid for all overtime including Sundays and the following holidays: New Year's Day, Washington's Birthday, Decoration Day, Fourth of July, Labor Day, Thanksgiving, and Christmas." The new rule provides that "work performed on Sundays and the following legal holidays—namely, New Year's Day, Washington's Birthday, Decoration Day, Fourth of July, Labor Day, Thanksgiving, and Christmas (provided when any of the above holidays fall on Sunday, the day observed by the state, nation or by proclamation, shall be considered the holiday), shall be paid at the rate of time and one-half, except that employees who are regularly assigned to work

on Sundays and holidays, or employees who work in place of those so regularly assigned, will be compensated on the same basis as on week-days when the entire number of hours constituting the regular week-day assignment of work, or when released on their own request before the completion of such hours." The following clauses are also appended to this new rule:

"If released by the carrier before the expiration of the regular week-day assignment, time and one-half will be allowed for the actual time worked. Sunday and holiday work will be required only when absolutely essential to the continuous operation of the railroad."

A slight change which may or may not, according to the Board's later interpretations, be important, was made in the provisions pertaining to part time work on Sundays and specified holidays. Part of the rule covering this point in the national agreement states that: "regular assignment of more than four and less than eight hours on these days (Sundays and specified holidays) may be established if agreeable to the employees concerned, the hours *worked* to be paid for at the overtime rate." The comparable clause in the new code reads "regular assignments of more than four hours and less than eight hours on these days may be established if agreeable to the employees concerned, the hours to be paid for at the pro-rata rates."

As in the case of maintenance-of-way employees, the rule covering the payment of employees performing service which requires them to leave and return to their home station daily, has been revised to eliminate the necessity in some cases of paying overtime rates for the time spent in traveling or waiting. The national agreement provision provided that employees performing such service should be paid continuous time from the time they are required to report to the time they return, *whether working, waiting or traveling*. The new rule substitutes for this underlined phrase the following: "straight time for all straight-time work; overtime for all overtime work; straight time for all time traveling or waiting."

Another clause of the signalmen's national agreement provided for the payment of half time to employees traveling in boarding cars between 10 p. m. and 6 a. m. This clause has been eliminated in the new code and after February 16, these employees will receive no time for traveling in boarding cars after the regular working period hours.

The rules of the signalmen's national agreement fixing a starting time for shifts and the time and lengths of meal periods have been changed in the new code so that these points may be "arranged by mutual understanding between the local offices and the employees' committee based on actual service requirements."

When employees work through the regular lunch period, they were paid overtime rates for their regular lunch period and 20 minutes in addition to procure their lunch under another rule of the national agreement. Under the new rule covering this point employees required to work through their lunch period will be paid straight time and will be allowed the necessary time to procure their lunch later (not to exceed 30 minutes), without loss of time.

The definition of a helper in the signalmen's national agreement has been expanded and made more specific in the new code. The national agreement characterized a helper as "a man assigned to perform work generally recognized as helpers' work and to assist signalmen, assistant signalmen, signal maintainers, assistant signal maintainers." The new rule characterizes a helper as: "A man assigned to assist other employees specified herein."

Pay for Employees Assigned to Road Work

Section 4 of Article 5 of the signalmen's national agreement relating to the payment on a monthly basis of employees assigned to the maintenance of a section, and who do not return to their home station daily, and employees regularly assigned to perform road-work, is materially changed in the new code. The old and the new rules covering these points are set out side by side below:

National Agreement

An employee assigned to the maintenance of a section who does not return to home station daily and employees regularly assigned to perform road work may be paid on a monthly basis. Such employees shall be paid not less than the minimum hourly rate established for the corresponding class of employees coming under the provisions of this agreement, on the basis of 365 eight-hour days per calendar year, with pay at the rate of time and one-half time for Sundays and holidays designated herein; otherwise, overtime will not be paid. Where meals and lodging are not furnished by the railroad or where the service requirements make the purchase of meals and lodging necessary while away from home point, employees will be paid actual expenses. This service is distinct and separate from that performed by any other class of employees coming under the provisions of this agreement and is not to be confused therewith; the employees assigned to it shall not be assigned to or used to perform work assigned to the other employees under the provisions of this agreement.

NOTE—The following is an example to be followed in arriving at the monthly rate:

	Hours
365 days multiplied by 8	2920
equals	2920
59 Sundays and holidays at one-half time will be 59 multiplied by 4, equaling	236
Total hours to be paid for	<u>3156</u>

The monthly salary is arrived at by dividing the total earnings of 3156 hours by 12; no overtime is allowed for time worked in excess of 8 hours per day; on the other hand, no time is to be deducted unless the employee lays off of his own accord.

New Rule

An employee assigned to the maintenance of a section who does not return to home station daily and employees regularly assigned to perform road work may be paid on a monthly basis. Such employees shall be paid not less than the minimum hourly rate established for the corresponding class of employees coming under the provisions of this schedule on the basis of 365 eight-hour days per calendar year. The monthly salary is arrived at by dividing the total earnings 2920 hours by 12; no overtime is allowed for time worked in excess of 8 hours per day; on the other hand, no time is to be deducted unless the employee lays off of his own accord.

The regularly assigned road men under the provisions of this rule may be used, when at home point, to perform shop work in connection with the work of their regular assignments.

Where meals and lodging are not furnished by the carrier or when the service requirements make the purchase of meals and lodging necessary while away from home point, employees will be paid necessary expenses.

If it is found that this rule does not produce adequate compensation for certain of these positions by reason of the occupants thereof being required to work excessive hours, the salary for these positions may be taken up for adjustment.

The new rule, in addition, adds the following:

"A signal helper, when working alone, or two or more signal helpers working together, may perform such work as filling and cleaning lamps, cleaning and oiling interlocking plants, bonding track, renewing primary batteries, excavating, and handling material, but shall not be permitted to do work recognized as distinctively maintainers' or signalmen's work."

Changes in the Discipline Rules

Two sections of the national agreement relating to investigations into the dismissal of employees and appeals thereon provide for the holding of hearings within seven days of the date when charged with the offense, and for the rendering of a decision within seven days after the completion of the investigation, have been revised in the new agreement to provide for a time limit in these cases of ten days instead of seven days.

Another rule of the signalmen's national agreement, which has been slightly revised in the new set of working rules, is that relating to the reinstatement of employees after charges against them have been unsustained. The rule covering this point in the national agreement said in part:

"If by reason of such unsustained charge the employee has been removed from position held, reinstatement will be made and payment allowed for the assigned working hours actually lost, while out of service of the railroad, at not less than the rate of pay of position formerly held or for the difference of rate of pay earned, if in service."

The new rule says:

"If by reason of such unsustained charge the employee has been removed from position held, reinstatement will be made and payment allowed for the assigned working hours actually lost, while out of the service of the carrier, at not less than the rate of pay of position formerly held, or for the difference in rate of pay earned in or out of the service."

Because a very large majority of the carriers and their employees have agreed upon the major part of Article III, comprising the seniority rules, this article is omitted in its entirety. In further negotiations attention is again directed to principle 11, Exhibit "B" of Decision No. 119, which provides that:

"The principle of seniority long applied to the railroad service is sound and should be adhered to. It should be so applied as not to cause undue impairment of the service."

The Labor Board believes that certain other subject matters now regulated by the rules of the national agreement may not be covered in all localities by rules of general application, and require further consideration by the parties directly concerned.

The omission of the rules governing the above matters is indicated herein by not including the number of the article or the section thereof, as the case may be, as used in the national agreement, and all such rules which involve a dispute between a particular carrier and its employees are hereby remanded to said carrier and its employees for the purpose of adjustment under the provisions of Section 301 of the Transportation Act.

With the exception noted above, the clauses of the signalmen's national agreement have either been continued by the Labor Board in this new code or remanded to the individual carriers and their own employees for settlement. It will be noted in this connection that the classification rules of the old national agreement remain unchanged with the exception of that one pertaining to helpers and that all of the provisions relating to promotions have been perpetuated *in toto* as have the provisions of the national agreement grouped in Article 7 and termed "miscellaneous."

The new rules are to apply to each of the carriers party to the dispute except in such cases as any particular carrier may have agreed with its employees upon any one or more of the rules in which cases the rule or rules agreed upon by the carrier and its employees are to apply.

Seniority Rules Remanded for Settlement

Regarding the rules which were part of the old national agreement, and which are not specifically mentioned in the new code, the Labor Board's decision says:

As in the case with the previous announcements of this character made by the Board, the interpretations made by the United States Railroad Administration, by adjustment boards or other agencies acting under the Railroad Administration of those rules which are similar to rules in the national agreement do not apply.

Labor Leaders of Railroad and Coal

Miners' Unions to Confer

A joint meeting of representatives of the United Mine Workers of America, and the "sixteen standard" railroad labor organizations, is to be held in Chicago on February 21, to consider the formation of an alliance of the members of these organizations "in resistance to proposed attacks on the wage scale." The call to the meeting was sent out by John L. Lewis, president of the mine workers' organization, who is obviously trying to enlist the aid of railway employees in the threatened strike of coal miners on April 1. Reports emanating from Indianapolis, where the coal miners' organization has its headquarters indicate that every effort will be made to induce members of the railroad organization to either refuse to handle coal produced by non-union workers in the event of a strike in the mines or walk out in a sympathetic strike.

When leaders of the railroad organizations accepted Mr. Lewis' invitation, he said that "it indicates that the organized railroad workers and mine workers have a profound appreciation of the necessity for closer co-operation and it reflects a determination to utilize every proper means of protecting the interest of the men employed in these basic industries."

More Carriers Apply to Labor Board

for Wage Reductions

The list of carriers, parties to the dispute over the proposed wage reductions, hearings in which will begin on March 6, include, in addition to those enumerated in the *Railway Age* of February 11 (page 777), the Alabama & Vicksburg, the Vicksburg, Shreveport & Pacific, the Charleston & Western Carolina, the Chicago & Eastern Illinois, the Louisville, Henderson & St. Louis, the Nashville, Chattanooga & St. Louis, the Chicago, Rock Island & Pacific, the Chicago, Rock Island & Gulf, the Central New England, the Northwestern railroad, the Atlantic Coast Lines, the Boston & Albany, the Boston & Maine, the Buffalo, Rochester & Pittsburgh, the Cleveland, Cincinnati, Chicago & St. Louis, the Cincinnati Northern, the Louisville & Jeffersonville Bridge, the Muncie Belt, the Denver Union Terminal, the Evansville, Indianapolis & Terre Haute, the Hocking Valley, the Long Island, the Manistique & Lake Superior, the New York, Ontario & Western, and the Pittsburgh & Lake Erie. In addition submissions have been received by the Board on several disputes between certain labor organizations and carriers as a result of the employees' request for wage increases. The disputes of this character submitted to the Board during the past week include cases involving the Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express and Station Employees, and the Cleveland, Cincinnati, Chicago & St. Louis, the Oregon-Washington Railway & Navigation Company, and the Los Angeles & Salt Lake, the Federated Shop Crafts and the Virginian and the Bessemer & Lake Erie; and the Order of Railroad Telegraphers and the Southern Pacific and the Lake Erie & Western.

M. & N. A. Seeks Wage Reduction

The Missouri & North Arkansas came before the Labor Board on February 15 and through J. C. Murray, receiver, asked the Board for permission to cut wages 25 per cent in order that the operation of the carrier, suspended since July 31, 1921, could be resumed. Mr. Murray outlined the proposition which was submitted to the employees of the railroad on

October 10. This proposal involves the cutting of wages 25 per cent and the division of any surplus earned by the carriers, after paying operating expenses and interest on government loans, among the men to an extent to bring their wage scale up to the wages paid on other carriers. The owners of the property would receive nothing under the receiver's proposal until after the government loan has been paid off and wages have been restored to the standard scale period.

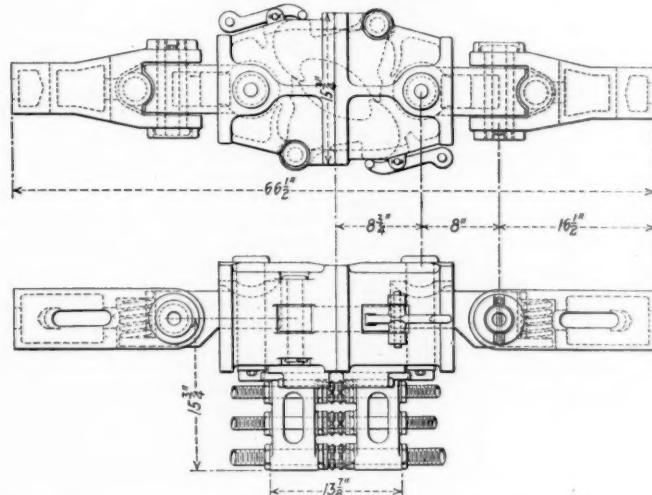
In testifying before the Board Mr. Murray stated that the resumption of operation of the property is dependent upon three propositions: First, the outcome of an application to the Interstate Commerce Commission for a loan of \$3,000,000; second, the outcome of an application to the commission for an increased division of 25 per cent on traffic interchanged with connections; and, third, the outcome of the present application to the Labor Board for a 25 per cent decrease in wages. He also testified that the carrier has been operated at a loss since the receivership began in 1912; that no dividends have been paid since that time, and that the accumulative loss totaled \$17,000,000.

F. J. Wade, president of the Mercantile Trust Company, St. Louis, Mo., representing the holders of all of the stocks, bonds, receiver's certificates, etc., of the carrier, also testified as to the financial history of the property and of his efforts to bring about a resumption of operation.

Representatives of the employees involved based their arguments largely upon the question of jurisdiction and procedure under the terms of the Transportation Act.

The Universal Car and Hose Coupler

A COMBINED CAR COUPLER and automatic steam and air hose connector in the design of which a complete departure has been made from the operating principle of the present standard vertical plane coupler, has recently been placed in service on a number of steam railway passenger cars. The device, which has been developed by the Universal Car and Hose Coupler Company, St. Louis, Mo.,



General Arrangement of the Universal Car and Hose Coupler

provides for no vertical adjustment between the coupler heads and the hose connector blocks are directly connected to the car coupler head.

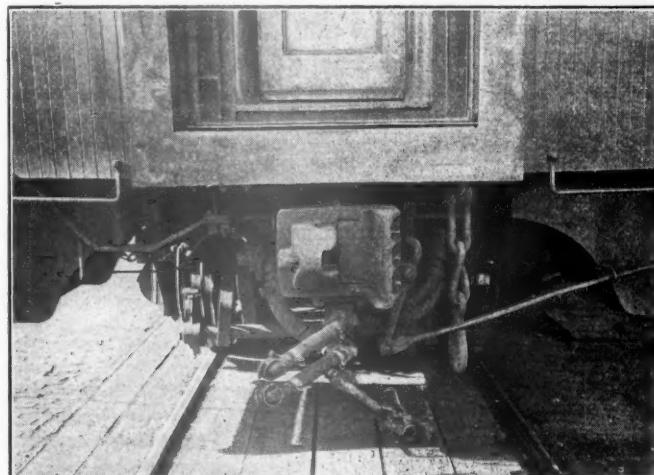
The operating principle of the coupler is clearly shown in the illustrations. From the drawing, which shows two of the devices coupled together, it will be seen that vertical and lateral adjustments are provided for by an intermediate section of the draw bar, hinged to the main draw bar by a large horizontal pin. To the end of this the coupler head in turn

is attached by a vertical pin connection. When uncoupled the coupler head is supported approximately in a horizontal position by means of a vertical coil spring acting on an extension from the lower side of the intermediate draw bar.

The coupler head presents a rectangular bearing face measuring approximately 11 in. vertically by 16 in. wide over all, the width of the bearing surface being about 1 3/4 in. From the left half of the rectangle enclosed by this bearing projects a tongue which is tapered both horizontally and vertically to provide for automatically bringing the coupler heads into alignment as they approach each other. Within the right half of this rectangle is a pocket to receive the tongue of the opposing coupler. The inside vertical face of this tongue is recessed to form a standard M. C. B. knuckle contour for use in interchange with standard equipment. A horizontal opening through the tongue is also provided for the so-called locking lug or latch which is attached to the coupler head by a 1 5/8-in. knuckle pin. A cylindrical pocket 8 in. long by 1 1/8 in. in diameter is drilled into the locking lug and in this recess is placed a 1-in. coil spring 5 1/2 ins. long acting on a 1-in. pin projecting beyond the back side of the lug. This pin acting against an interior surface of the coupler head automatically maintains the lug in its locking position in which the locking or latch portion of the lug projects outward through the side wall of the adjoining coupler head when the two heads are locked. In coupling, as the bearing faces of the adjoining couplers are gathered into alignment, each automatically opens the latch of the adjoining head against the spring compression until the bearing faces come in contact. Each latch then closes into an opening through the side wall of the adjoining coupler head, thus locking the two heads together. In uncoupling, lateral pressure is brought against the face of one of the latches where it projects through the wall of the adjoining coupler head, by means of a suitable lever arrangement, thus pushing it back

to clear the locking face of the coupler head with which it is engaged. The interior surface of the latch end of the locking lug engages a tail projection on the adjoining lug in such a manner that the one operation moves both lugs to the release position.

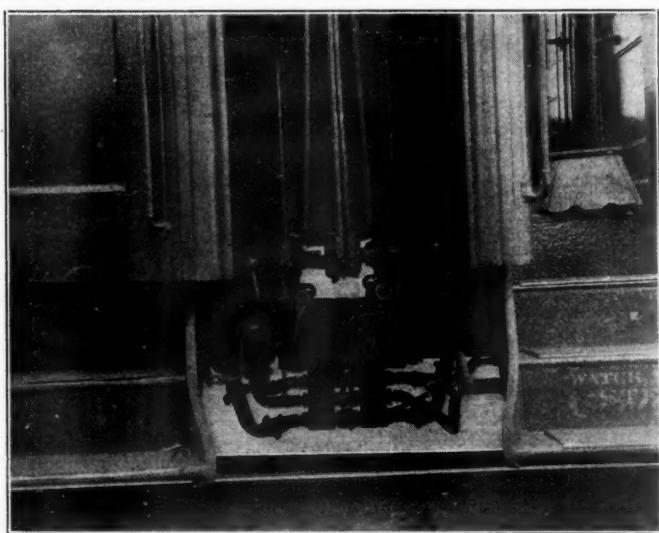
Owing to the fact that the adjoining coupler heads are permitted no freedom of movement relative to each other when coupled the opposed connector blocks are attached directly to the coupler heads, which, thus perform the function of alignment for the hose connections. All that is required, therefore in the hose connector feature are end gasket connections located on the vertical center line of the coupler at fixed dis-



Universal Coupler with Guard Arm Applied for Interchange with the Standard Car and Hose Couplers

To provide for interchange with standard vertical plane couplers a casting, corresponding in contour with the guard arm of the standard coupler, has been designed to fit into the receiving pocket of the Universal coupler, to which it is secured by a lug on its lower face. This lug fits in a corresponding opening through the bottom of the coupler head. One of the illustrations shows this casting in place.

The principle purposes in the design of this coupler are to eliminate the necessity for going between cars to line up coupler heads or to couple air and steam; to interlock the two coupler heads in such a way that the draft stresses will be uniformly distributed over the head; to eliminate slack between the coupler heads and to keep them in correct alignment on curves as well as on straight track.



Universal Couplers in Passenger Service

to clear the locking face of the coupler head with which it is engaged. The interior surface of the latch end of the locking lug engages a tail projection on the adjoining lug in such a manner that the one operation moves both lugs to the release position.

Owing to the fact that the adjoining coupler heads are permitted no freedom of movement relative to each other when coupled the opposed connector blocks are attached directly to the coupler heads, which, thus perform the function of alignment for the hose connections. All that is required, therefore in the hose connector feature are end gasket connections located on the vertical center line of the coupler at fixed dis-

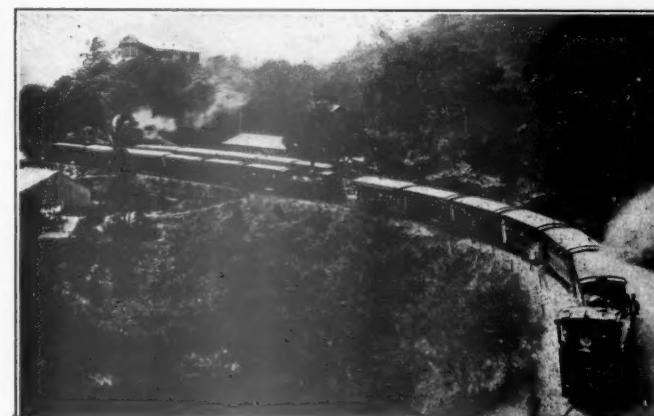


Photo by Keystone

A Narrow Gage Line in Venezuela

General News Department

The American Association of Engineers will hold its fourth annual railroad conference in Chicago on Monday, March 13, the day preceding the opening of the annual convention of the American Railway Engineering Association.

Hearings before Judge K. M. Landis in the controversy between the Pennsylvania and the Railroad Labor Board, briefly described in previous issues of the *Railway Age*, has again been postponed from February 17 to February 20.

Charges of manslaughter against the engineman and fireman of the Michigan Central train which collided with a New York Central train at the crossing at Porter, Ind., last February, causing the death of 37 passengers, were dismissed in the Circuit Court at Valparaiso, Ind., on February 13.

The Railway Club of Pittsburgh will hold its next meeting at Fort Pitt Hotel, Pittsburgh, on Thursday evening, February 23. Col. H. C. Nutt, president and general manager of the Monongahela Railway will present a paper on "Railway Transportation in the A. E. F." There will be a luncheon following the meeting.

The American Railway Express Company has bought 104 electric trucks for street use, and now has in service more than twelve hundred electric wagons. The new equipment is for service in New York, Philadelphia and Buffalo. It is planned to run the New York trucks on a 24-hour basis, using interchangeable batteries. It is estimated that the exchange of batteries will require less time than to fill the tanks of five-ton gasoline trucks.

The Associated Railroads of New Jersey, comprising nine of the larger systems, represented by A. D. Oliphant and acting with the co-operation of business men and farmers' organizations, have appealed to the Legislature of New Jersey to pass Senator Allen's bill repealing the full crew law of that State. The railroad brotherhoods appeared in force, at the hearing before the Judiciary Committee, to oppose the bill.

Mr. Oliphant showed that since 1913 the added cost of railroad operation due to the full crew law aggregated \$5,000,000 in New Jersey, while last year it amounted to \$627,000. Pennsylvania repealed the full crew law last year, and it is hoped that New York will do the same this year. Mr. Oliphant emphasized the anomalous situation resulting from different laws in the neighboring States. The Allen bill proposes to empower the Public Utility Commission to order larger crews where trains are shown to be undermanned.

Siberian Veterans to Meet

The Siberian Veterans, an organization of those who saw service with the railway expedition to Siberia, will hold its second "Bolshoi Praznik" at the Hotel Commodore, New York, on Saturday, February 25.

Western Railway Club Meeting

The February meeting of the Western Railway Club will be held in the Great Northern hotel, Chicago, on Monday evening, February 20. A paper on "Some Factors in the Business of Owning Locomotives" will be presented by C. B. Peck, mechanical editor of the *Railway Age*.

American Society for Steel Treating

The sectional meeting of the American Society for Steel Treating, scheduled for March 3, will be held at the Hotel McAlpin, New York City, instead of at the Engineering Societies' building as previously announced.

C. M. & St. P.'s Appeal Dismissed

The appeal of the Chicago, Milwaukee & St. Paul from the ruling fining H. E. Byram, president of the road, and three other officers \$100 on each of 25 charges for withholding a Chicago employee's wages for time spent in voting on election day was dismissed on February 8 by the State Supreme Court at Springfield, Ill. The court ruled that as the prosecution was under the criminal code, an appeal as in a civil case was not in order.

A. S. T. M. Annual Meeting

The American Society for Testing Materials will hold its twenty-fifth annual meeting at Chalfonte-Haddon Hall, Atlantic City, N. J., during the week beginning June 26, 1922. The first day will be devoted to committee meetings and the convention will open on Tuesday morning, June 27, closing on Friday evening, June 30, or Saturday morning, July 1.

Wage Statistics For October

The Interstate Commerce Commission's summary of wage statistics for October indicates an increase of 35,806 in the number of employees as of the middle of the month compared with September. The total compensation increased \$12,630,137, making a total of \$237,602,959 for a total of 1,754,736 employees. The report for the Detroit, Toledo & Ironton is not included.

I.C.C. Reports on Accident to P.R.R. Locomotive

A report has recently been issued by the chief inspector of the Bureau of Locomotive Inspection, Interstate Commerce Commission, giving the results of an investigation of an accident to Pennsylvania Railroad locomotive 2599, which occurred at Gould Mine, Pa., December 6, 1921. The report states that the accident, which resulted in the death of the locomotive engineer, was caused by grooving of the outer firebox sheet directly above the mud ring in conjunction with fractures of the staybolts in the adjacent area.

Demonstration of Regan Train Control

An operating demonstration of the Regan Automatic Train Control system of the intermittent electrical contact type as installed on the main line of the Chicago, Rock Island & Pacific between Blue Island and Joliet was made on February 13 for the benefit of railroad officers representing all departments which will be affected by train control installations. Speed control was demonstrated in connection with caution signal indications and the train was stopped automatically at locations where the signals indicated stop. On the return trip another locomotive equipped with the indication type of apparatus demonstrated the action of this type at four locations between Blue Island and Chicago.

Committee to Study Train Control

Representatives of all but three or four of the 49 railroads cited in the Interstate Commerce Commission's proposed train control order met in Chicago on Tuesday, February 14, to consider the action to be taken in response to the Commission's order. At this time it was decided to create a committee of nine members to represent the roads with the understanding that any carrier may supplement such presentation in any manner and to such an extent as it considers necessary. This committee includes C. E. Denney, vice-president and general manager of the New York, Chicago & St. Louis, chairman; T. H. Beacom, vice-president and general manager, Chicago Rock Island & Pacific; W. M. Jeffers, general manager, Union Pacific; A. M. Burt, assistant to operating vice-president, Northern Pacific; E. B. Katte,

chief engineer electric traction, New York Central; C. H. Morrison, signal engineer, New York, New Haven & Hartford; W. J. Eck, signal and electrical superintendent, Southern Railway; R. W. Bell, general superintendent motive power, Illinois Central, and C. F. Giles, superintendent machinery, Louisville & Nashville.

It was also concluded that those roads which desire to show cause why this train control order should not be entered will appear individually before the Commission on or before March 15 and that R. H. Aishton, president of the American Railway Association, should request the Commission to name a date on which this newly created committee may present its testimony in connection with the provisions of the order which affect all carriers.

No Particular Type of Train Control

Endorsed by I.C.C.

The Interstate Commerce Commission has issued a memorandum to the press, referring to its automatic train control order, saying: "It has come to the commission's notice that parties interested in particular devices, by advertisements and other representations in stock-selling activities, are giving the impression to the public that the commission approved, and ordered carriers to install, their particular devices.

"The commission desires it to be understood that its order does not prescribe, prefer, or indorse any particular device or type to be used by any carrier.

"The only requirement is that installation shall pass certain technical specifications and requirements which have been found to be necessary for the successful operation of devices of this character. These are so broad as to afford the desired freest field of opportunity for inventors and for trying out all automatic train control and train stop devices."

Tentative Valuations

The Interstate Commerce Commission has issued its tentative valuation of the property of the Chicago & Eastern Illinois as of June 30, 1915, which gives a final value for the carrier property owned of \$66,082,109 and for the property used of \$69,206,753. This is less than the outstanding capitalization on the valuation date, \$87,181,902, but since that time additions and betterments have been made and the company has been reorganized. The difference between the property owned and that used is mainly represented by the leased property, including \$4,000,000 for that leased from the Chicago & Western Indiana. The total mileage owned was 1,012. The cost of reproduction new of the carrier property owned, exclusive of land, was given as \$72,331,913 and the cost less depreciation as \$54,771,471.

The commission has also announced other tentative valuations as follows:

		Used	Owned
Newburgh & South Shore	1917	\$3,754,546	\$3,272,897
Lake Superior & Ishpeming ..	1916	4,903,378	4,902,156
Minneapolis Western	1916	794,088	712,592
Salt Lake & Los Angeles	1916	353,903	315,391

Both the Senate Committee on interstate commerce and the House Committee on interstate and foreign commerce have voted to report favorably the bills striking out of the valuation act the provision which requires the Interstate Commerce Commission to ascertain and report the so-called "excess cost of acquisition" of land.

The Government's Use of Jersey Central Locomotives

W. G. McAdoo, former director general of railroads, when making his recent statement before the Senate Committee at Washington (*Railway Age*, February 11, page 371) quoted, with inferences unfavorable to the road, from a letter written by President W. G. Besler of the Central of New Jersey to the superintendent of motive power, directing the latter to have certain locomotives repaired as quickly as possible, so that a bill for the repairs could be presented to the government. Writing to the Newark Morning Ledger Mr. Besler replies to Mr. McAdoo in part, as follows:

"One side of the story is good until the other is told. Mr.

McAdoo glibly states that the railroads, on return to private operation, endeavored to put through bills and charge them to the government, and he cites the Jersey Central as a particularly horrible example.

"Of course the railroads did so, for the reason that, under the contract, the government was obligated to return the properties in as good condition as when taken over, and when, as in the case of the Jersey Central, there were upwards of 100 engines disabled, worn out, and out of service, which should have been repaired by the director general, but which had been set aside and were not so repaired, why should not the railroads send such engines to engine builders for rebuilding, and to be placed in working condition? They had been worn out in 26 months of government operation, and had not been repaired. Is there anything improper in the thought that the government should repair them, or at least pay for the bills on account of such repairs? These bills have not yet been paid! It is one of the claims against the government for failure in the matter of maintenance and upkeep which we hope and intend, if possible, to make the government pay, as required by its obligation in the contract."

Hoover, Daugherty and Trade Associations

Secretary of Commerce Hoover in a memorandum to the attorney general has expressed his views on trade associations and has asked the attorney general for an informal expression of his opinion regarding the legality of certain activities of such associations.

Secretary Hoover's view in the main seems to be that the trade association has a legitimate field but that care is needed to prevent abuses. He emphasizes particularly that information regarding production, capacity, wages, consumption and the like should be given for publication to the daily and business press before it is given to members and that any information obtained be made public and not kept for the exclusive information of members of the association. Some of the points upon which the attorney general was asked to express an opinion are, in brief:

1. May a trade association provide for its members a uniform system of cost accounting, provided that costs so arrived at are not furnished to the members of the association?
2. May a trade association work for uniformity in the use of trade phrases and trade names?
3. May it arrange for uniform grading of product, standard contracts, standard processes and co-operate with its members in eliminating wasteful processes?
4. May it collect credit information about customers, provided a black-list is not established?
5. May it handle insurance for its members?
6. May it, with its members, engage in co-operative advertising?
7. May it engage in welfare work among the employees of its members?
8. May it handle legislative matters in behalf of its members?
9. May it undertake to bring about closer co-operation between its members and federal and state government?
10. May the association collect statistics from members about volume of production, capacity to produce, wages, consumption of product at home and abroad distribution of product? May a summary by districts be prepared from these statistics and given to the secretary of commerce?
11. May price statistics be compiled and given only to the secretary of commerce?

Attorney General Daugherty has replied that cost accounting uniformity would be objectionable only if uniform costs were assumed by the members of the association for factors entering into the selling price. Certain phases of Mr. Hoover's proposal about co-operative advertising, too, the attorney general said, would well be modified slightly. Regarding the other proposals he could see no objection provided there was no tendency to curtail production, enhance price or suppress competition. He emphasized, however, that this view was tentative.

Hearing on Authority to Permit Acquisition of Control

The Interstate Commerce Commission has ordered a hearing at Washington on February 28 at which interested parties may express their views on the question that has arisen in the Pittsburgh & West Virginia case as to the authority of the commission to grant the application for permission to acquire the control of the West Side Belt under paragraph 2 section 5 of the interstate commerce act. The questions to be considered at the hearing are:

- (1) May one carrier engaged in the transportation of passengers or property subject to the act acquire control of another such carrier or carriers by any of the methods specified in paragraph 2, section 5 of said act without obtaining the approval of the commission, as provided in said paragraph?

Operating Statistics of Large Steam Roads—Selected Items for the Month of November, 1921,

Region, road and year	Average miles of road operated	Train-miles	Freight service						Average number of locomotives on line daily				
			Locomotive-miles		Car-miles		Ton-miles (thousands)		Revenue and non-revenue	Serviceable	Unserviceable	Per cent un-serviceable	Per cent serviceable
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Excluding locomotive and tender	Gross					
New England Region:													
Boston & Albany.....	1921 394	251,928	273,418	33,417	4,679	65.7	246,283	97,897	114	30	20.8	...	...
	1920 394	288,294	307,069	31,127	4,752	65.3	266,072	116,430	120	31	20.3	...	...
Boston & Maine.....	1921 2,469	571,251	641,453	53,972	12,256	67.5	644,718	261,124	327	129	28.3	42	42
	1920 2,469	674,504	742,560	66,044	12,723	67.7	729,212	329,515	357	111	23.7	1	1
N. Y., N. H. & H.....	1921 1,960	444,960	487,025	28,064	11,322	68.9	572,639	242,845	304	84	21.6	37	37
	1920 1,959	497,446	515,583	46,413	10,187	68.4	552,390	248,429	317	118	27.1	5	5
Great Lakes Region:													
Delaware & Hudson.....	1921 880	347,311	460,788	34,524	8,921	61.9	591,405	293,973	271	45	14.3	104	104
	1920 881	401,002	572,876	37,889	9,711	61.7	681,317	352,573	273	41	12.9	37	37
Del., Lack. & Western.....	1921 994	523,112	642,243	117,417	15,222	66.0	856,897	392,628	301	62	17.0	14	14
	1920 997	583,438	707,453	133,206	16,607	66.5	987,411	481,206	312	79	20.3	...	...
Erie (Inc. Chic. & Erie).....	1921 2,259	1,044,876	1,163,869	52,499	31,047	59.6	1,951,171	819,967	574	174	23.3	32	32
	1920 2,259	1,178,956	1,321,360	42,675	34,323	63.2	2,179,781	1,028,789	586	110	15.8	3	3
Lehigh Valley.....	1921 1,430	610,085	668,662	66,645	16,193	60.8	1,016,758	467,877	428	124	22.4	106	106
	1920 1,430	620,705	691,872	60,767	16,673	64.0	1,079,823	547,245	401	193	32.4	82	82
Michigan Central.....	1921 1,829	477,653	483,669	19,140	13,534	62.9	743,560	287,651	322	90	21.8	81	81
	1920 1,826	496,560	516,889	19,667	14,520	64.8	806,501	347,596	308	110	26.3	20	20
New York Central.....	1921 5,655	1,789,278	2,009,801	141,313	59,516	62.1	3,486,744	1,498,918	1,036	581	35.9	224	224
	1920 5,646	2,175,095	2,489,669	193,142	70,536	62.5	4,403,171	2,097,956	(1)	(1)	(1)	(1)	...
N. Y., Chic. & St. L.....	1921 572	326,947	328,024	563	9,727	65.8	507,951	196,673	120	36	23.3	45	45
	1920 573	357,309	359,504	897	9,870	64.9	537,139	221,256	108	58	35.0	19	19
Pere Marquette.....	1921 2,191	359,494	369,593	6,687	8,352	64.3	456,918	213,825	157	51	24.5	4	4
	1920 2,208	347,827	357,665	5,091	7,920	68.8	435,425	205,197	163	38	18.7	2	2
Pitts. & Lake Erie.....	1921 228	92,180	96,302	1,036	2,946	60.8	215,420	120,572	64	21	24.9	8	8
	1920 225	157,836	170,696	1,624	6,029	69.3	425,389	257,162	67	10	12.6	...	...
Wabash.....	1921 2,418	597,690	622,938	8,540	15,643	68.3	853,848	376,596	276	68	19.7	22	22
	1920 2,418	649,401	667,160	8,466	16,131	73.2	904,237	431,166	268	70	20.8	...	...
Ohio-Indiana-Allegheny Region:													
Baltimore & Ohio.....	1921 5,185	1,733,929	1,852,404	137,125	41,340	59.7	2,690,055	1,289,523	1,014	359	26.1	199	199
	1920 5,154	2,049,251	2,317,994	116,340	49,685	61.8	3,465,222	1,793,227	1,082	247	18.6	...	...
Central of N. J.....	1921 679	273,473	302,599	34,892	5,723	59.5	374,199	179,514	210	48	18.7	8	8
	1920 679	334,155	363,581	36,046	6,695	60.7	457,469	235,799	210	56	20.9	...	...
Chicago & Eastern Ill.....	1921 1,131	238,636	241,331	3,155	5,458	57.5	343,935	162,851	123	48	28.3	40	40
	1920 1,131	310,324	321,296	4,869	6,887	61.3	456,042	237,349	145	41	21.9	...	...
C., C., C. & St. L.....	1921 2,387	646,739	678,065	4,475	17,231	57.7	1,095,081	499,567	326	121	27.1	43	43
	1920 2,394	725,557	758,380	1,080	19,710	61.5	1,287,435	613,049	314	94	23.1	...	...
Elgin, Joliet & Eastern.....	1921 837	94,275	103,436	5,906	2,663	62.8	207,120	108,860	98	10	9.6	30	30
	1920 837	146,509	166,345	10,748	4,335	68.2	325,349	183,340	94	13	12.2	...	...
Leng Island.....	1921 395	46,764	54,059	8,835	532	58.2	30,681	11,779	37	9	19.9	...	...
	1920 395	47,298	59,381	11,695	568	62.0	26,627	10,667	40	7	15.2	...	...
Pennsylvania System.....	1921 10,876	4,392,835	4,804,350	365,393	107,908	59.9	7,486,712	3,640,596	2,541	905	26.3	439	439
	1920 10,838	5,024,942	5,605,611	439,873	124,243	64.2	8,471,278	4,536,443	2,265	820	26.6	18	18
Phila. & Reading.....	1921 1,119	542,405	608,540	75,293	12,828	60.0	889,145	455,074	363	78	17.6	136	136
	1920 1,119	715,351	830,371	109,694	16,736	63.1	1,184,439	657,844	291	93	24.2	1	1
Pocahontas Region:													
Chesapeake & Ohio.....	1921 2,548	697,053	770,665	20,134	19,284	54.0	1,512,415	783,803	430	118	21.5	56	56
	1920 2,520	839,129	929,482	30,140	23,415	59.2	1,809,158	995,675	401	125	23.8	...	...
Norfolk & Western.....	1921 2,222	731,130	888,403	32,758	19,359	55.4	1,502,777	788,360	585	115	16.4	164	164
	1920 2,189	899,348	1,139,756	40,808	22,556	59.8	1,790,738	987,186	504	178	26.1	44	44
Southern Region:													
Atlantic Coast Line.....	1921 4,911	590,297	595,496	9,655	13,019	63.3	675,534	257,065	290	102	26.1	38	38
	1920 4,887	665,747	670,410	10,635	14,296	64.7	773,091	320,510	281	142	33.6	...	...
Central of Georgia.....	1921 1,908	205,817	206,816	2,873	4,341	70.3	218,906	94,298	111	25	18.6	11	11
	1920 1,913	227,712	228,946	2,711	4,225	65.0	245,572	115,137	116	15	11.2	...	...
I. C. (Inc. Y. & M.V.).....	1921 6,151	1,588,526	1,593,930	33,785	40,359	60.8	2,565,099	1,129,507	744	85	10.3	9	9
	1920 6,151	2,010,700	2,022,860	39,443	45,164	59.9	3,104,990	1,459,905	725	115	13.7	2	2
Louisville & Nashville.....	1921 5,020	1,474,968	1,571,596	56,561	25,045	58.7	1,642,077	758,987	567	93	14.1	11	11
	1920 5,024	1,529,706	1,658,250	57,373	25,262	61.3	1,643,249	798,068	534	125	19.0	...	...
Seaboard Air Line.....	1921 3,537	411,399	419,805	8,222	8,697	68.7	448,770	182,634	169	88	34.1	...	...
	1920 3,537	416,173	429,593	9,281	9,176	72.1	481,865	217,075	173	86	33.3	...	...
Southern Ry.....	1921 6,942	1,306,749	1,334,024	34,173	27,385	66.1	1,461,568	604,236	869	240	21.6	14	14
	1920 6,942	1,433,781	1,472,392	41,609	27,252	62.4	1,601,740	700,745	890	217	19.6	3	3
Northwestern Region:													
C. & N. W.....	1921 8,378	1,418,823	1,453,848	20,843	28,379	61.5	1,623,799	666,755	809	256	24.0	55	55
	1920 8,323	1,769,389	1,799,385	21,137	33,987	62.3	2,025,896	947,972	694	235	25.3	...	...
C., M. & St. P. I.....	1921 10,992	1,441,977	1,479,360	61,838	32,948	62.1	1,845,313	790,180	865	216	20.0	118	118
</													

Compared with November, 1920, for Roads with Annual Operating Revenues above \$25,000,000.

Region, road and year	Average number of freight cars on line daily				Per cent un-serviceable	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons loaded per car	Car-miles per car-day	Net ton-miles per car-day	Pounds of coal per 1,000 gross ton-miles, including locomotive Train-car and tender miles	Passenger service		
	Home	Foreign	Total	Stored								Passenger train car-miles		
New England Region:														
Boston & Albany...1921	3,154	5,133	8,287	7.2	700	978	389	20.9	394	28.6	8,284	217	297,481	1,903,600
1920	1,124	6,404	7,528	6.4	...	923	404	24.5	516	32.2	9,852	225	312,554	1,955,589
Boston & Maine....1921	16,732	17,299	34,031	18.6	...	1,129	457	21.3	256	17.8	3,526	158	789,055	4,302,136
1920	8,961	23,334	32,295	11.0	129	1,081	489	25.9	340	19.4	4,449	...	854,538	4,620,303
N. Y., N. H. & H....1921	22,002	19,196	41,198	21.6	152	1,287	546	21.4	196	13.3	4,131	164	1,022,853	6,442,298
1920	12,499	27,246	39,745	11.4	...	1,110	499	24.4	208	12.5	4,227	201	1,104,934	6,917,944
Great Lakes Region:														
Delaware & Hudson..1921	9,043	6,787	15,830	9.6	262	1,703	846	33.0	619	30.4	11,130	195	185,409	921,931
1920	4,950	11,645	16,595	8.1	...	1,699	879	36.3	708	31.6	13,346	207	183,406	954,882
Del., Lack. & Western,1921	15,019	8,630	23,649	13.3	...	1,638	751	25.8	553	32.5	13,166	187	480,303	3,291,054
1920	7,213	16,907	24,120	5.5	...	1,692	825	29.0	665	34.5	16,093	...	482,431	3,487,640
Erie (inc. Chi. & E.)1921	36,174	21,057	57,231	19.1	2,604	1,867	785	26.4	478	30.3	12,101	156	657,195	4,676,964
1929	12,020	41,722	53,742	6.3	...	1,849	873	30.0	638	33.7	15,183	172	678,289	4,767,406
Lehigh Valley.....1921	27,600	10,033	37,633	15.2	1,281	1,667	767	28.9	414	23.6	10,903	174	347,786	2,567,021
1920	11,538	19,472	31,010	10.1	96	1,740	882	32.8	588	28.0	12,754	185	370,012	2,757,003
Michigan Central....1921	17,377	17,201	34,578	19.1	...	1,557	603	21.3	277	20.7	5,241	145	565,818	5,071,190
1920	5,750	21,088	26,838	7.2	...	1,624	700	23.9	432	27.8	6,347	...	606,902	5,225,327
New York Central....1921	76,797	52,390	129,187	22.8	7,450	1,949	838	25.2	387	24.7	8,835	132	2,255,415	17,902,558
1920	34,912	107,382	142,294	8.4	...	2,024	965	29.7	492	26.4	12,385	...	2,242,862	18,081,303
N. Y., Chic. & St. L.1921	3,518	5,058	8,576	7.5	767	1,554	602	20.2	764	57.4	11,458	115	86,084	486,863
1920	1,865	7,647	9,512	8.0	...	1,503	619	22.4	775	53.3	12,876	...	86,221	544,599
Pere Marquette.....1921	9,935	13,837	23,772	16.2	750	1,271	595	25.6	300	18.2	3,253	161	285,180	1,413,190
1920	4,497	15,103	19,600	8.5	...	1,252	590	25.9	349	19.6	3,098	182	299,968	1,489,710
Pitts. & Lake Erie...1921	18,042	8,906	26,948	43.3	1,370	2,337	1,308	40.9	449	6.0	17,634	93	106,647	550,035
1920	4,864	22,522	27,386	11.6	...	2,695	1,629	42.7	313	10.6	38,173	77	112,471	571,222
Wabash.....1921	11,485	12,621	24,106	11.4	649	1,429	630	24.1	521	31.7	5,192	172	514,098	2,729,478
1920	5,916	19,151	25,067	9.6	131	1,392	664	26.2	573	29.8	5,944	188	567,146	3,000,082
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio....1921	62,407	36,065	98,472	12.7	10,063	1,551	744	31.2	437	23.5	8,291	200	1,368,316	8,805,065
1920	33,086	79,208	112,294	6.4	...	1,691	875	36.1	532	23.9	11,599	179	1,337,628	8,315,060
Central of N. J....1921	17,818	9,037	26,855	11.5	5,029	1,368	656	31.4	223	11.9	8,819	179	314,610	1,533,177
1920	7,636	17,274	24,910	15.7	...	1,369	706	35.2	316	14.8	11,580	...	313,047	1,399,593
Chicago & Eastern Ill.1921	13,529	3,391	16,920	15.7	2,500	1,441	682	29.8	321	18.7	4,800	184	220,812	1,457,199
1920	6,175	8,056	14,231	13.9	...	1,470	765	34.5	556	26.3	6,995	...	230,465	1,475,801
C., C., C. & St. L....1921	15,220	19,416	34,636	11.2	8,302	1,693	772	29.0	481	28.7	6,978	142	666,869	4,196,908
1920	5,036	28,764	33,800	8.7	...	1,774	845	31.1	605	31.6	8,536	...	773,011	4,635,782
Elgin, Joliet & East'n.1921	9,572	4,259	13,831	8.3	534	2,197	1,155	40.9	262	10.2	4,337	137	(2)	(2)
1920	8,839	7,062	15,901	7.7	...	2,221	1,251	42.3	384	13.3	7,301	...	183	1,055,410
Long Island.....1921	1,935	4,581	6,516	5.1	146	656	252	22.1	60	4.7	995	346	184,531	1,011,356
1920	576	5,151	5,727	3.4	...	563	226	18.8	62	5.3	187,794	...	1,055,410	1,055,410
Pennsylvania System...1921	206,215	78,864	285,079	12.7	26,733	1,704	829	33.7	426	21.1	11,157	153	4,942,073	33,060,992
1920	121,377	170,818	292,195	3.6	1,198	1,686	903	36.5	518	22.1	13,953	...	5,250,792	34,855,792
Phila. & Reading....1921	24,425	14,735	39,160	4.5	1,802	1,639	839	35.5	387	18.2	13,551	183	477,101	2,251,520
1920	10,387	28,966	39,353	5.6	...	1,566	926	39.3	557	22.5	19,599	...	524,311	2,349,342
Pocahontas Region:														
Chesapeake & Ohio...1921	38,297	13,874	52,171	10.9	...	2,170	1,125	40.6	501	22.8	10,254	144	432,333	2,415,194
1920	17,593	26,652	44,245	8.9	...	2,156	1,187	42.5	750	29.8	13,170	...	442,364	2,494,295
Norfolk & Western...1921	29,758	7,749	37,507	7.2	645	2,055	1,078	40.7	701	31.0	11,827	190	397,711	2,505,571
1920	19,337	20,418	39,755	7.2	...	1,991	1,098	43.8	828	31.6	15,035	...	398,497	2,702,930
Southern Region:														
Atlantic Coast Line...1921	21,936	9,597	31,533	15.5	...	1,144	435	19.7	272	21.7	1,745	139	750,886	4,848,203
1920	11,390	17,834	29,224	9.9	...	1,161	481	22.4	366	25.2	2,186	...	777,684	5,253,615
Central of Georgia....1921	4,192	3,318	7,510	14.9	...	1,064	458	21.7	419	27.4	1,647	153	301,875	1,540,356
1920	1,651	5,529	7,180	7.6	...	1,078	506	27.3	535	30.2	2,007	...	310,777	1,603,088
I.C. (inc. Y. & M.V.)1921	39,022	24,945	63,967	6.5	6,225	1,615	711	28.0	589	34.6	6,121	154	1,392,331	8,105,275
1920	15,520	44,627	60,147	4.5	...	1,544	726	32.3	809	41.8	7,911	...	1,354,321	7,961,644
Louisville & Nashville.1921	36,920	15,437	52,357	21.5	91	1,113	515	30.3	483	27.2	5,040	181	928,849	5,361,007
1920	18,139	28,793	46,932	17.0	69	1,074	522	31.6	567	29.3	5,295	...	894,656	5,349,050
Seaboard Air Line....1921	12,088	8,952	21,040	28.0	...	1,091	444	21.0	289	20.1	1,721	194	551,622	3,306,370
1920	5,726	12,195	17,921	11.5	...	1,158	522	23.7	404	23.7	2,046	191	525,428	2,898,346
Southern Ry.....1921	37,090	25,071	62,161	11.1	4,055	1,118	462	22.1	324	22.2	2,901	215	1,259,757	7,454,198
1920	17,733	41,043	58,776	38.6	...	1,117	489	25.7	397	24.8	3,365	...	1,427,206	9,084,497
Northwestern Region:														
C. & N. W.....1921	42,644	26,501	69,145	7.0	9,000	1,144	470	23.5	321	22.2	2,653	192	1,5	

(2) Does said paragraph authorize the acquisition by one such carrier of title to the physical property of another such carrier either by deed or by lease in perpetuity, the transaction amounting to "consolidation into a single system for ownership and operation," but not involving the creation of a new corporation or change in the corporate identity of either?

(3) May one such carrier controlling 51 per cent. of the voting power in another such carrier acquire additional voting power by the purchase of an additional percentage of such other carrier's securities without securing the approval of the Commission under said paragraph?

(4) May one such carrier purchase less than a controlling interest in the securities of another such carrier where such purchase will not in and of itself give the purchaser control without securing such approval under said paragraph?

(5) May the Commission in connection with an application for authority to acquire control by lease prescribe as a condition of its approval of said lease that the applicant shall not during the life of said lease part with its control over the lessor previously acquired by the acquisition of capital stock?

(6) May the Commission in authorizing acquisition of control in one manner prescribe conditions with respect to the exercise of control in another manner?

(7) What conditions, generally, may the Commission impose under paragraph 2, section 5, in authorizing the acquisition of control in the manner therein prescribed?

Employees Invited to Think

Charles G. O'Neal, receiver of the Fort Smith & Western, a 200-mile railroad in Oklahoma, has issued a circular announcing to employees that cash prizes are to be offered to employees for ideas and suggestions which can be used to enhance the efficiency of the operation of the road. The circular says, in part:

... Your automobile can run for a while without gasoline, going down hill, but to go up-grade you must step on the gas. Any old-fashioned plant can continue to make money when business is flourishing, but in these times, the most expensive, modern equipment will not save any enterprise which ignores the importance of the human element, and the elimination of unnecessary costs.

To encourage every member of the railroad's organization, to suggest, think and work and become a full member of the organization from which he derives a livelihood, the Management is going to offer cash prizes and other suitable recognition to employees suggesting methods that will produce savings to the railroad. . . . Let us remember that one man is only better than another when he behaves himself better.

Let us give every well-behaved man and woman their equality of opportunity. Live and let live is not enough—we must live and help live, in America.

Your employer must be able to make ends meet in order to pay your wages and meet other obligations. Conditions make it necessary that economy be practiced in its utmost detail. Therefore, we want to conduct a "business prayer meeting" if you please, where all members of the team, from the highest official down to the office boy, may be encouraged to relate for the common good whatever useful ideas he may have, "either inspiring or chastening." . . . A lot of men are crammed full of knowledge, but can't or don't put it in the proper channels for use. Skill is, of course, essential, but it must be wide awake skill that knows the "why" as well as the "how" of a thing.

True worth of any individual can only come through the possession of his full powers and knowledge of the truth. The management is not afraid of the truth. Here are some things that contribute most to men's success: First, ability to get along with other people; second, ability to think, and to go straight when you think. Look about you, study your work, observe the other fellow; can he assist you? or can you assist him in any mutual way that will produce more economy or eliminate waste? You are not limited to any department in your observations. Make memorandums of your observations and be ready to enter this campaign, full details of which will be out in a short time. Are you going to enlist? Let's step on the gas.

Traffic News

C. L. Strunk has been appointed traffic manager for the Benjamin Electric Manufacturing Company, Chicago, succeeding F. H. Thyer, who is now in the sales department of the company.

Robert I. Pierce, formerly with the Firestone Tire & Rubber Company, Akron, Ohio, has been appointed manager of the Traffic Bureau of the Terre Haute (Ind.) Chamber of Commerce.

Reductions in round-trip summer tourist rates to the Pacific coast approximating a cut of \$20 were announced by Western roads at Chicago on February 15. Roads east of Chicago have also agreed on new reduced summer tourist fares, which will soon be announced.

The Ohio State Public Utilities Commission has set February 18, as the date for beginning an investigation of coal freight rates within the state. The action follows a request of Governor Davis, who asked for the hearing to ascertain whether the rates are excessive and are contributing to the inactivity of the Ohio coal mines.

Western roads have announced reduced summer tourist rates to mid-western points for 1922 which are approximately the same as those in effect before the increase of 1920. The rates from Chicago will be on the basis of one and one-tenth of the present one-way fares, and of one and one-fourth for the round trip from Missouri river points.

The Transportation Club of Detroit, Mich., has elected the following officers for 1922: President, O. S. Dustin, general traffic manager, Ashley & Dustin Line; vice-presidents, W. S. Rodger (Detroit United Line); George R. Dawson (Mulkey Salt Company); secretary, T. R. Cochrane, (Wabash); treasurer, J. A. Ferguson (G. P.). Members of executive committee, R. O. Bromley (M. C.); W. S. Crowl (Michigan Alkali Company).

The Transportation Club of St. Paul, Minn., on February 7, elected the following officers: President, P. R. Flanagan, assistant general freight agent, Chicago Great Western; vice-president, Foster Hannaford (Noyes Brothers & Cutler); secretary, Charles A. Liggett (St. Paul Association); treasurer, F. H. Parker, (G. N.); directors, C. S. Beach (Finch, Van Slyck & McConville); H. G. Costello (Yung-Gray Lumber Company); M. P. Graven (C. M. & St. P.); H. Lufkin (St. Paul Foundry Company); H. Mueller (St. Paul Association).

The Chicago Great Western has served notice on competing lines that it will place in effect between Chicago and St. Paul, and between Chicago and Omaha, passenger fares \$1.50 less than those over other lines. The C. G. W. sought a year ago to place such a differential in effect but its application to the Western passenger association has been opposed by its competitors. The present notice follows hearings before the association during the past year. The C. G. W. operates fewer trains to these points than its competitors and does not run through and beyond as do the Chicago & North Western and the Chicago, Milwaukee & St. Paul. This disadvantage is recognized by its competitors but they do not admit that it is sufficient to warrant a differential; they would agree, however, to certain excursion and immigrant privileges. Whether the present action is to cause further passenger fare cuts in the west is problematical.

Valuation of Baggage Compulsory

Passengers on the Southern Pacific, beginning on March 1, will be required to place a valuation on all baggage and a charge of 10 cents will be made for each \$100 of value or fraction thereof, over the established limit of \$100. The change is, in effect, the same as that inaugurated some time since by the Chicago, Burlington & Quincy, and the practice of using adhesive stamps for the excess value charge will be followed. The new plan is not compulsory with intrastate movements in the states of California and Arizona.

Atlantic City as a Winter Resort

The Pennsylvania Railroad reports that travel from New York to Atlantic City on Lincoln's Birthday this year assumed huge proportions. On Friday, February 10, the Atlantic City Limited, an all-Pullman extra-fare train, was run in eight sections, carrying a total of 2,065 passengers, and on Saturday, February 11, the same train was run as an extra in eight sections and carried 2,043 passengers, a total of 4,108 for the two days.

Returning on Monday, the 13th, the New York Limited, an extra-fare all-Pullman train, was run in seven sections, carrying 1,564 passengers. Other regular trains on the 13th carried 2,173 additional passengers from Atlantic City to New York.

Anthracite Shipments in January

Cold waves during January, left their impress in the shape of increased shipments of anthracite during that month, there being a gain of 212,131 tons over December, 1921, although the total January shipments were 892,485 tons less than in the corresponding month last year, due in part to the continued industrial depression. The January record of the Anthracite Bureau of Information shows 4,848,053 gross tons is a decrease from the 1921 average of about 14 per cent.

Shipments by originating carriers were as follows:

	January 1922	January 1921	December 1921
P. & R.	1,052,872	1,172,873	985,262
L. V.	766,602	1,058,127	801,796
C. of N. J.	542,558	470,704	532,597
D. L. & W.	744,768	910,260	626,377
D. & H.	619,762	814,491	654,987
Penna.	331,871	451,879	307,520
Erie	466,495	606,602	450,465
N. Y. O. & W.	101,779	156,564	107,107
L. & N. E.	221,346	99,038	169,811
	4,848,053	5,740,538	4,635,922

Coal Production

Production of coal continues to increase, according to the weekly bulletin of the Geological Survey. The total output during the week ended February 4 is estimated at 9,708,000 net tons, an increase of 88,000 tons as compared with the preceding week. In comparison with the corresponding period a year ago, the increase was 1,576,000 tons.

Central of Georgia Calls on the Public to Confer

The general superintendent and other officers of the Central of Georgia have been traveling over the road holding conferences with patrons concerning train service and other problems of mutual interest. Civic organizations, city councils and the public generally were invited to meet them; and W. A. Winburn, president of the road, issued a brief statement showing the imperative necessity of drastic reduction in expenditures. The road failed by a million dollars to be self-sustaining last year and the officers have gone as far as they possibly can in practicable economies. "We have reduced forces, deferred maintenance and postponed repairs so far as is safely possible. Our employees have done their part by saving \$400,000 in the fuel bill, by reducing the claims for loss and damage to freight and by decreasing the personal injuries."

Continuing, Mr. Winburn says: "It appears, therefore, that the only road open to us is the revision of train schedules so as to free us from the burden of paying overtime; and perhaps in certain instances the temporary removal of certain passenger trains that do not appear to be necessary for the business welfare of the communities that we serve. . . . The very fact that the trains are running nearly empty shows that the service is not essential. But we are anxious to avoid injury to the commercial interests of any community and we ask their help in solving this problem."

The party travels by motor car, and Dover, Dublin, Millen, Statesboro, Milledgeville, Covington, Carrollton and Bremen were among the first places visited.

Federal Traffic Bureau Seeks Economies

Plans for the standardization of shipping and travel regulations for all government departments, which are expected to save the government thousands of dollars annually, are being formu-

lated by the advisory committee of the Federal Traffic Board, under the direction of Budget Officer Charles G. Dawes. As a part of his program to secure "more business in government" General Dawes called a meeting of the advisory committee on February 9 and spoke on the various phases of traffic problems faced by the government at this time.

The committee is composed of some of the most prominent railroad traffic executives, consisting of Ralph C. Caples, chairman; Lewis J. Spence, director of traffic, Southern Pacific; George H. Ingalls, vice-president, New York Central lines; Lincoln Green, vice-president, Southern; H. M. Adams, vice-president, Union Pacific, and Archibald Fries, vice-president of the Baltimore & Ohio. At the meeting there was discussed a plan for simplification in rate-making and the subsequent rendition of accounts and their payment. Six committees have been appointed to take up the traffic problems of the government.

Bills of Lading

The Interstate Commerce Commission has issued an announcement regarding its orders in the bill of lading cases which says:

On October 21, 1921, the commission made two reports in this investigation. In the first of these, *Export Bill of Lading*, 64 I. C. C., 347, it prescribed the form of through export bill of lading to be issued for the transportation of property in connection with vessels registered under the laws of the United States. In the second, *Domestic Bill of Lading and Live Stock Contract*, 64 I. C. C., 357, it prescribed the forms of the domestic bill of lading and of the live stock contract, which later were, on petition, modified in two minor particulars.

The export bill was ordered to be made effective on or before February 15, 1922. Upon representations by the roads that they desired to make the export bill, the domestic bill and the live stock contract effective at the same time, the effective date of the order was changed to March 15, 1922. No order was made in connection with the domestic bill of lading and the live stock contract.

These bill-of-lading rules affect "the value of the service rendered to the shipper, or consignee" and must be filed with the commission in accordance with the provisions of section 6 of the law. The commission has no jurisdiction over loss or damage claims, and the interpretation of the applicable provisions of bills of lading is a matter of law, to be determined by the courts. . . .

It is customary for carriers to furnish bills of lading, but large shippers frequently provide their own. With regard to the transportation covered by paragraph 11 of section 20 of the law, it is specifically provided that any carrier receiving property for such transportation "shall issue a receipt or bill of lading therefor; and . . . it would seem that a carrier could refuse to use a bill of lading tendered by a shipper which was of an unusual size or style. While this is a question to be determined by the courts, it would appear that the terms and conditions of the appropriate bill lawfully published and filed would govern shipments subject to the interstate commerce act, regardless of what bill was actually issued, or of a possible failure to issue a bill. . . . A number of requests have been received for permission to use old bills of lading, or forms with no conditions printed thereon, but the utmost the commission could do would be to indicate that it approved or did not approve of such a practice. The need for it has greatly diminished now that there will be uniform bills of lading for use throughout the country, and there is still an appreciable time during which current forms can be used; and . . . the commission is unwilling to lend its approval to the practice.

In due course an order will be promulgated by the commission designating points at which information relative to the handling of export shipments shall be maintained, and at which through ocean bills of lading shall be issued. . . .

PASSENGER TRAINS moved over the Pacific system of the Southern Pacific during 1921, averaged 93.4 per cent. on time at destination. This is an increase of 3.4 per cent. over 1920.

AN ATTEMPT TO WRECK the southbound Shore Line limited of the Southern Pacific at Glendale, Cal., on the night of January 27, failed when a man was shot in the act of nailing down an obstruction which might have thrown the train off the track. The culprit, a former switchman of the road, died later from the effect of the wound. It was reported that the train carried from \$70,000 to \$150,000 in money but the actual amount is stated to have been about \$8,000.

Commission and Court News

Interstate Commerce Commission

The commission has suspended from February 15, until June 15, the operation of schedules published by the Carolina, Clinchfield & Ohio which propose to increase the rates from 356½ cents to 388 cents per net ton on coal from mines on the Carolina, Clinchfield & Ohio, the Interstate, the Norfolk & Western and the Norton & Northern in Virginia to destination stations, Stokes to Ehrhardts, S. C., on the Atlantic Coast Line Railroad and Lemon Spur to Ehrhardts, S. C., on the Bamberg, Ehrhardts & Waterboro.

The Commission has issued a decision in the case of the American Wholesale Lumber Association versus the director general and the railroads, in which it holds that the charge of \$10 a day on cars of lumber held for reconsignment beyond 48 hours after 7 a. m. of the day following the notice of arrival, which was established by the director general in 1919, was not unreasonable or otherwise unlawful. However, under present conditions, with the great number of idle freight cars and entire absence of congestion throughout the country, the commission finds that the charge is and while present conditions continue, will be, unreasonable. It is, therefore, ordered that the railroads cease from collecting this charge after March 13 until further orders of the commission.

Personnel of Commissions

E. I. Lewis, a member of the Interstate Commerce Commission, has been designated by the commission to assume administrative charge of the work of the Bureau of Valuation, in place of Commissioner Aitchison, who is to devote more of his time to specialization on car service work. Mr. Lewis has been a member of Division I of the commission, which has general supervision over valuation matters. Charles F. Staples is acting director of the bureau.

Court News

Snowsheds and Boarding Car Cooking Utensils Not Assessable by Counties

The Montana Supreme Court holds that snowsheds are part of the roadbed and therefore assessable by the State Board of Equalization and not by the county assessor; and that boarding car cooking utensils are a part of the rolling stock and subject to no assessment save that by the State Board.—Great Northern v. Flathead County (Mont.), 202 Pac. 198.

Gondola Car With End Unfastened

The Circuit Court of Appeals, First Circuit, holds that a railroad company was negligent in placing a gondola car in a train with its drop end standing up, but unfastened, and that this was not one of the risks of employment assumed by a trainman who, in attempting to pass from that car to a box car next to it, stepped upon the unfastened upright end of the car, which gave way, and he fell through a bridge to the street below.—Boston & Maine v. Sullivan, 275 Fed. 890.

Couplers Required Under Federal Law

The Circuit Court of Appeals, Seventh Circuit, holds that, under section 2 of the Federal Safety Appliance Act, couplers must be such that the act of coupling, as well as of uncoupling, can be accomplished "without the necessity of men going between the ends of the cars" (Johnson v. So. Pac., 196 U. S. 1, 25 Sup. Ct. 158), and that the act did not permit the use of a coupler which might require a brakeman to go on the track at the end of the car to open the knuckles, though the other train was some distance away. Offered evidence that it is impracticable to build couplers

whose knuckles can always be opened by the lever extending to the side of the car, that no such couplers have yet been made, and that the defendant uses a generally approved type, was held irrelevant, the offer not professing to show that compliance with the statute is a mechanical impossibility. The court said: "If the statute is harsh and is difficult to comply with, relief must come from the law-making, not the judicial, branch of the government."—Payne v. Colvin, 276 Fed. 15.

Strike No Defense to Action for Demurrage Charges

The Circuit Court of Appeals, Eighth Circuit, holds that under the Interstate Commerce Acts demurrage charges for detention of cars by a shipper or consignee must be enforced, and it is no defense to an action to collect them that the detention was caused by a strike, or was by orders of a sheriff, prohibiting the moving of the cars to prevent inciting mob violence. Neither the Interstate Commerce Commission nor the courts can release parties from such charges because of a strike. Congress alone has the power to write such an exception into the statute.—Sinclair Refining Co. v. Schaff, 275 Fed. 769.

Propriety of Extra Charge for Refrigerator

Car is for I. C. C., Not for Courts

The published freight tariff for potatoes from Page, N. D., to Chicago was \$181.69. Another published tariff authorized an extra charge of \$5 when the shipper uses a refrigerator or other insulated car. The Minnesota Supreme Court holds that the question of the propriety of this extra charge is for the Interstate Commerce Commission to pass upon and the state courts cannot, in an action by the shipper to recover the charge, interfere with the rates fixed.—J. C. Famechon Co. v. Hines (Minn.) 185 N. W. 941.

Storage Rule for Explosives Does Not Apply to C. L.

The Circuit Court of Appeals, Third Circuit, holds, affirming judgments for the defendant in actions by thirteen plaintiffs against the Lehigh Valley arising out of the Black Tom Terminal fire, that section 1643 of the regulations of the Interstate Commerce Commission, providing that: "Suitable provision must be made, outside the station when practicable, for the safe storage of explosives, and every effort possible must be made to reduce the time of the storage," does not extend to explosives in carload lots which have arrived at their destination and are awaiting unloading for trans-shipment.—Fidelity & Deposit Co. v. Lehigh Valley, 275 Fed. 922.

Derailment—Condition of Cars After Accident

In an action for injuries to a passenger in a derailment the Circuit Court of Appeals, Seventh Circuit, held it error to refuse permission to the railroad company to show what was disclosed by an inspection of the cars of the train. The plaintiff having charged, among other acts, defects in the cars, and having relied upon the rule of *res ipsa loquitur*, so far as the rule may apply, it was incumbent on the company to meet and disprove each of the alleged acts of negligence which would give application to the rule. The lapse of time between the accident and a part of the inspection affected the weight, but not the admissibility of this evidence.—Payne v. Cohlmeier, 275 Fed. 803.

Physical Connection of Rival Roads Held Unnecessary

In an action to require the Northern Pacific to make a physical connection at Centralia, Wash., between its tracks and those of the Puget Sound & Willapa Harbor, owned and operated by the Chicago, Milwaukee & St. Paul, the Supreme Court of the State of Washington holds that the rival road should not be required to make the physical connection in order that a lumber company might purchase timber and ship it over the Milwaukee road. Evidence did not show with sufficient definiteness the volume of business to be affected, and the saving of time and expense to the shipper as against the cost and loss to the carrier. Judgment reversing an order of the state Public Service Commission was therefore affirmed—Northern Pacific v. Commission (Wash.), 202 Pac. 4.

Labor Board Decisions

Labor Board Declines to Restore

Previous Differentials

A request for an increase in the rates of pay for men in signal towers—train directors and levermen—to restore differentials previously existing between those positions and the positions of dispatchers and signal maintainers, respectively, was raised by the Order of Railroad Telegraphers in a protest against the Terminal Railroad Association of St. Louis. Previous to Federal control, train directors received a higher rate than train dispatchers. The application of the various orders issued by the United States Railroad Administration affecting the classes of employees involved in this dispute has resulted in train dispatchers now receiving a higher rate of pay than the train directors, while levermen, who previously received a higher rate than signal maintainers, are now receiving less. The Labor Board denied the request of the employees.—*Decision No. 611.*

Overtime for Sunday Work by Section Foreman

The question of overtime payment to the foremen for the supervising of maintenance of way gangs was submitted to the Labor Board which cited the following clause from the National Agreement as applying:

"(h) Employees whose responsibilities and or supervisory duties require service in excess of the working hours or days assigned for the general force will be compensated on a monthly rate to cover all services rendered, except that when such employees are required to perform work which is not a part of their responsibilities or supervisory duties, on Sundays or in excess of the established working hours, such work will be paid for on the basis provided in these rules in addition to the monthly rate. For such employees, now paid on an hourly rate, apply the monthly rate, determined by multiplying the hourly rate by 208. Section foremen required to walk or patrol track on Sundays shall be paid therefor, on the bases provided in these rules, in addition to the monthly rate."

The decision of the board is as follows: In the event that no agreement has been reached, effective December 16, 1921, section (h) of Article V of Decision No. 501 shall apply in the manner provided therein. For all service considered as overtime, for which extra compensation is provided, the hourly rate of pay for such service shall be predicated upon 204 hours per month, in accordance with section (e), Article V of Decision No. 501, regardless of the hours or days that may be considered as the regular assignment of monthly-rated supervisory forces.—*Decision No. 593.*

Method of Paying Roustabout Carpenters

A roustabout carpenter on the Louisville & Nashville, with headquarters at Knoxville, Tenn., was engaged in miscellaneous repair work over a portion of the line. He was assigned to a certain carpenter gang but worked entirely without supervision except that he made material and work reports to the gang foreman at the end of each week. The railroad paid him on the basis of 10 hours a day at pro rata rates in accordance with Section i of Article V of the National Agreement. The employees contended that Section m of the same article was the one which applied in his case. Sections i and m are quoted below:

(i) Employees temporarily or permanently assigned to duties requiring variable hours, working on or traveling over an assigned territory and away from and out of reach of their regular boarding and lodging places or outfit cars, will provide board and lodging at their own expense and will be allowed time at the rate of 10 hours per day at pro rata rates and in addition pay for actual time worked in excess of 8 hours on the basis provided in these rules, excluding time traveling or waiting. When working at points accessible to regular boarding and lodging places or outfit cars, the provisions of this rule will not apply.

(m) Employees not in outfit cars will be allowed straight time for actual time traveling by train, by direction of the management, during or outside of regular work period or during overtime hours either on or off assigned territory, except as otherwise provided for in these rules. Employees will not be allowed time while traveling, in the exercise of seniority rights or between their homes and designated assembling points or for other personal reasons.

The Labor Board sustained the position of the carrier.—*Decision No. 649.*

Foreign Railway News

Extending the Benguela Railway

LONDON.

An extensive program of construction and improvement of railways and port works is proposed for Angola, Portuguese West Africa. The most important project is the extension of the Benguela railway to the Belgian Congo frontier, which will involve the construction of about 466 miles of new line. Track material and rolling stock have already been imported.

French Railway Rates to Be Reduced

LONDON.

The French railways are considering the question of lowering their rates, especially in the case of heavy raw materials. M. Le Trocquer, the minister of public works, has provisionally approved a list of rates for metals, providing a fairly large reduction of those actually obtaining. Rates for consignments of metallurgical products to French seaports are reduced by 25 to 40 per cent, and in the case of ores for export, rates are reduced from 10 to 15 per cent.

French Training for English Students

LONDON.

The Société des Ingénieurs Civils de France states that French engineering firms manufacturing rolling stock and other railway material in the Lorrain district have offered to accept for periods of two or three months a few British engineering students through their summer holidays. The students will not receive any salary and are to make their own arrangements for the journey, board and lodging and will be expected to submit to the same discipline and working hours as their French colleagues on the works' staff.

Brighton Railway Electrification

LONDON.

The London, Brighton & South Coast railway, England, has deposited a bill in Parliament to raise additional money for the purpose of electrifying certain portions of its line. It is estimated that the work will require an expenditure of upwards of £1,000,000 (or about \$4,866,000 at the normal rate of exchange). The bill proposes to empower the company to borrow £500,000 (\$2,433,000) authorized in the year 1911, and also further powers to borrow £1,000,000 (\$4,866,000) which "may be raised without reference to the issue of any additional capital."

Electrification of Italian Railways

LONDON.

The Italian ministry of public works has approved the electrification of the Bologna-Venice-Monfalcone line and the work is to be given to private industry. The Italian State Railway Administration is at present considering the question of using thermo-electric centers instead of hydroelectric centers, since the latter presents the difficulty of high cost of labor and materials and owing to the shortage of water supply with which Italy is at present confronted. It is reported that the electrification of the Chiasso-Bellinzona and Arth-Goldan-Luccona lines will be completed by the end of January, 1922.

"Luggage-in-Advance" Rates Reduced in England

LONDON.

The railway companies of Great Britain have announced reduction in the charge for the conveyance of passengers' "luggage-in-advance" from 3 shillings (approximately 73 cents at the normal rate of exchange) to 2 shillings 6 pence (60 cents) per package. Before the war the charge was 1 shilling (25 cents) per package. During the war the

"luggage-in-advance" system was suspended but was one of the first pre-war services to be restored. Its popularity is very great and in addition to its proving a source of income it assists the railway companies to avoid delays which the handling of large quantities of luggage on passenger trains involves.

Strange Railway Accident in England

LONDON.

An accident occurred on January 27, on the London & North Western between Roade and Blisworth, Northampton, England, as the result of which one person was killed and 18 injured.

The accident occurred between two express trains, one travelling from London to Birmingham and the other from Glasgow, Scotland to London. As the trains were passing each other they were struck by a flying piece of metal. What actually happened is still to a very great extent a matter of conjecture, but it is thought that the accident occurred through the steel foot-step of one of the engines becoming detached. The tender foot-step was apparently broken off the train travelling to Birmingham, which fell on the permanent way, and it is thought that when it hit the ground it rebounded and struck the first coach of its own train. The Glasgow to London express happened to be passing at the moment in the opposite direction, and the foot-step appears to have been caught between the two trains smashing in the glass and some panels in the first coach of each train. The roadway was not damaged.

Irish Railway Strike

LONDON.

The general strike ordered to begin on the Irish railways at midnight on January 14, owing to a dispute over an arbitration award lengthening the standard day, has been postponed. This is the outcome of a conference arranged between the railway managers, the men's representatives and Joseph McGrath, the minister of labor in the new Irish cabinet. The following notice was published by the ministry of publicity on Saturday:

The provisional government, mindful of its obligations to protect the economic life of the country and do all in its power to avert the calamitous consequence of a stoppage of railway services, hereby orders that the terms of the Carrigan award, dated December 17, 1921, dealing with wages and salaries, be put into operation as from January 15, 1922, but that, with a view to affording the provisional government time and opportunity to institute investigations, and to endeavor to bring about a settlement, the operation of the award, dated November 19, 1921, dealing with the hours and conditions of service be suspended for one month from January 14, 1922. The provisional government will recoup the companies for any proved loss incurred by them in consequence of the non-application of the award dated November 19, 1921.

The railwaymen's representatives undertook that work on the railways should continue for one month from January 14, 1922, without prejudice to further action.

British-Canadian Concession in Peru

Details of an important concession to British and Canadian interests by the government of Peru are given in the Pan-American Magazine. Some of these are:

1. The construction of about 1,300 miles of railway by the concessionnaire.
2. The grant of 50 million acres of agricultural and mining lands to the corporation for development by it. The surface rights are granted in perpetuity and the sub-surface rights for 33 years. Freedom from "import and export taxes, as well as all other imposts, such as income tax, internal revenue dues, stamp and registration fees, is also granted for the period during which the mineral (i. e., sub-surface) rights exist."
3. The concessionnaire receives for 33 years a monopoly of the tobacco industry in the country, subject to government supervision.
4. The concessionnaire takes over 62 miles of government railways now in operation and 106 miles under construction and pays £1,325,000 to the government, undertaking at the same time to complete the construction of the lines.
5. The government guarantees that for 33 years no railways will be built to parallel those of the concessionnaire.
6. The railway construction program is to be completed within 12 years.
7. The concessionnaire has deposited £10,000,000 with the government as a guarantee of good faith.

Standardization of Railway Gage in Australia

LONDON.

It is reported that the conference of state premiers with the federal minister has dropped for the time being the standardization of the railway gages. The first installment would involve an outlay of £21,000,000 (approximately \$102,186,000 at the normal rate of exchange). Mr. Hughes, the commonwealth prime minister is not favorable to the acceptance of any outside offer to undertake the transformation on a percentage basis, as he states the government can obtain all the money it needs for the purpose. The question of the standardization of the railway gage is therefore to stand postponed until May next, when a further conference will be held.

Australian State Railways' Deficits

LONDON.

The Australian railways like all other railways in various parts of the world have been unable to do much to reduce the deficits on the last year's working, owing principally to the high cost of labor and materials. From the annual reports published by the treasurer for the year ended June 30, 1921, the Queensland Railways, it is noted, have had the heaviest loss. The deficit in this railway's operations amounted to £1,581,000 (approximately \$7,693,146 at the normal rate of exchange) for the year ended June 30, 1921.

The deficit on the Victoria Railways amounted to £651,635 (or \$2,170,856) for the year ended June 30, 1921, while the deficit for the previous fiscal year amounted to £212,893 (\$1,035,937).

The New South Wales Government Railways had a deficit amounting to £577,032 (\$2,707,838) or a total deficit for railways and tramways of £470,360 (\$2,283,772). From this it will be seen that the tramways really made a profit on the year's operation. The deficit for the previous fiscal year amounted to £137,574 (\$669,435).

The Western Australia Government Railways' deficit amounted to £418,370 (\$2,045,808).

The New Zealand Railways had a deficit of £115,570 (\$562,363) after operating expenses and interest charges had been paid, although the previous years' working had resulted in a surplus.

Favors Leasing of French State Railway

LONDON.

A report of the sub-commission appointed to inquire into the question of leasing the French State Railway, proposes the creation of a company to operate the line. The scheme would always give a majority of votes to private persons owning capital shares, but would also admit to the board of directors and to the general meetings representatives of the state. The new company would have a capital of 210,000,000 francs (approximately \$40,518,000 at the normal rate of exchange). One-third of the shares would be subscribed by the departments and communes served by the State Railway, as well as by the respective chambers of commerce, administrations of free ports and industrial and agricultural groups. Two-thirds of the shares would be subscribed for by the public. A further 60,000 shares, termed labor shares, would be owned by the employees.

The company would be managed by a council of 27 members, three being representatives of the state and three representing holders of labor shares. The 21 other members would represent capital shares and would be elected at a shareholders' meeting, but seven of these are to be chosen from those representing public communities. This would mean that the subscribing public investing two-thirds of the company's capital would always have a majority of 14 directors out of 27.

British Report on Light Signals

The Ministry of Transport of the British Government has issued a report, dated October 28, in which a committee, appointed in July, reports on its investigation of light signals (for use both day and night) for signaling on British railroads.

The committee consisted of Major C. H. W. Edmonds, of the Ministry of Transport, chairman; J. C. Allen, of the National Union of Railwaymen; Major G. L. Hall, government inspecting

officer; H. J. Oxlade, Associated Society of Locomotive Engineers and Firemen; Captain B. H. Peter, Westinghouse Brake & Saxby Signal Company; W. J. Thorrowgood, telegraph and signal superintendent, London & Southwestern and M. R. Gardner, Ministry of Transport.

The committee inspected the color light signals in use on the Liverpool Overhead Railway, where such signals have been in use for a considerable time; and it was found that the signals were distinctly visible at a distance of 1,000 yards, when seen during brilliant sunshine. A position light signal on the London & Southwestern was also examined; and in both cases the lights were found sufficient and satisfactory. The conclusion of the committee is that the color light signal, with separate lenses for each color indication, is superior to all other signals. The committee holds that the use of color light signals will afford most, if not all, of the advantages obtained from power worked semaphores, and at considerably lower cost; particularly in congested districts where power is available; and even for sparsely signalled areas there is little difference in cost as compared with mechanical semaphores.

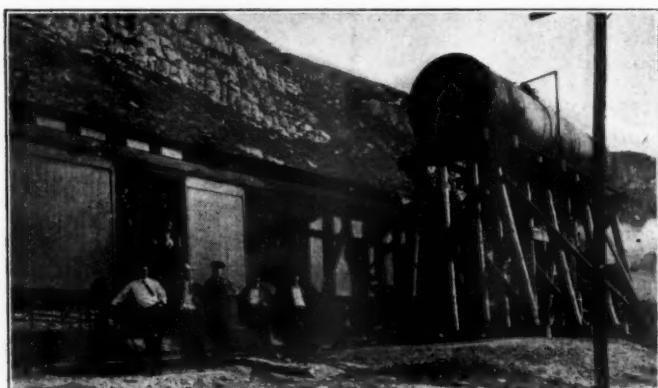
The committee believes that not more than three types of color light signals would be necessary, namely, for long range, for short range and for shunting. It is believed that artificial backgrounds are not necessary; also that lenses alone are preferable to reflectors or to combinations of reflector and lenses. Extensive hoods are believed undesirable.

English Shippers' Questionnaire on Effect of Rates on Traffic LONDON.

In view of the situation created by the refusal of the English railway companies to accede to the request of the shippers' organizations for a general reduction of freight rates, the Federation of British Industries has addressed a letter to its affiliated associations with a request for a reply to certain questions to enable the transport committee to draw up a considered case for reduction.

The letter states that the transport committee unanimously decided to adhere to their demand for a percentage decrease which should be general and include all goods affected by the uniform advances. The questions to which the affiliated associations are asked to reply, are:

1. To what extent have you diverted traffic from railway to road or water transport?
2. What amount of such traffic diverted would you hand back to railways if rates were reduced to, say, 75 per cent above 1913 prices?
3. Can you give any idea of what increased tonnage, if any, would result from a reduction in railway rates to say 75 per cent above 1913 prices, apart from question 2?
4. To what extent are the prices of your commodities today in excess of an average pre-war price?
5. What percentage reduction from the existing rates is necessary to assist your business?
6. To what extent have the increased rates caused a limitation of distribution so far as your firm is concerned. Have you had to cease sending long distances. If so, please give a few instances.



A Stop for Fuel and Water, in Mexico

Equipment and Supplies

Locomotives

THE DETROIT & MACKINAC is inquiring for one or more locomotives.

THE SAVANNAH & ATLANTA is asking for prices on 5 Mikado type locomotives.

THE DENVER & RIO GRANDE is asking for prices on 20 Pacific type locomotives.

THE BUFFALO, ROCHESTER & PITTSBURGH is asking for prices on 20 locomotives.

THE LOUISVILLE, HENDERSON & ST. LOUIS is asking for prices on 6 Consolidation type locomotives.

THE ARGENTINE STATE RAILWAYS are asking for bids for 50 narrow-gage locomotives, the gage being 750 mm. (30.3 in.). Communications regarding these locomotives should be addressed to the Direction General, Ferrocarriles del Estado, Buenos Ayres, Argentina.

Freight Cars

THE BOSTON & MAINE is having 1,000 box cars repaired at the shops of the Laconia Car Company.

THE NORFOLK & WESTERN is having 400 coal cars repaired at the shops of the Ralston Steel Car Company.

THE DELAWARE, LACKAWANNA & WESTERN is asking for prices on the repair of about 900 steel hopper cars, of 40 tons capacity.

THE PHILLIPS PETROLEUM COMPANY, Bartlesville, Okla., has ordered 60 insulated tank cars of 8,000 gal. capacity from the Standard Tank Car Company.

THE PHILADELPHIA & READING, reported in the *Railway Age* of December 31 as inquiring for from 500 to 2,000, 70-ton hopper cars, has divided an order for 2,000 cars equally between the American Car & Foundry, the Cambria Steel Company, the Pressed Steel Car Company and the Standard Steel Car Company.

Passenger Cars

THE PHILADELPHIA & READING has ordered 50 suburban coaches from the Bethlehem Shipbuilding Corporation, Harlan Plant.

Machinery and Tools

THE ERIE RAILROAD has recently purchased from Motch & Merryweather, Cleveland, Ohio, a considerable number of machine tools, including engine lathes, axle lathes, vertical turret lathes, shapers, a cylinder boring machine, four power hack saws, three hydraulic presses, two motor driven grinders, two pipe turning machines and a cutter grinder.

Iron and Steel

THE SOUTHERN RAILWAY has ordered 9,000 tons of rail from the Tennessee Coal, Iron & Railroad Co.

Miscellaneous

THE BUFFALO, ROCHESTER & PITTSBURGH will receive bids until 12 o'clock noon, February 24, at Rochester, N. Y., for 5,000 tons open-hearth steel rail, 100-lb. sections; 11,500 pairs 100-lb. angle bars 28-in.; 500 kegs track bolts; 1,000 kegs Goldie track spikes and 231,000 Goldie tie plates.

Supply Trade News

George W. Bender, formerly associated with Mudge & Co., has been appointed vice-president of the **Argyle Railway Supply Company**, Chicago. This company has opened offices in the Webster building, 327 S. LaSalle street, Chicago.

Stewart J. Dewey, assistant signal engineer of the Cleveland, Cincinnati, Chicago & St. Louis, has resigned to enter the service of the **Electric Storage Battery Company**, Philadelphia, Pa., in the railway signal department of its Chicago branch, effective March 1.

J. T. McGarry, vice-president of the American Valve and Meter Company, Cincinnati, Ohio, has been elected president and general manager, succeeding **Wallace H. Gray**, who has been elected chairman of the board of directors. **C. F. Bastian** has been elected secretary and treasurer of the same company, succeeding Dwight Marfield resigned.

Baldwin Locomotive Works

The annual report of the Baldwin Locomotive Works for the year ended December 31, 1921, shows a net profit of \$5,044,096, after federal taxes and other charges, equivalent, after preferred dividends, to \$18.22 a share on the \$20,000,000 common stock, against a net profit of \$4,428,518, or \$15.14 a share on the same amount of stock in 1920. The gross sales for the year were \$49,945,506 as compared with \$73,542,666 in 1920.

President S. M. Vauclain in his remarks to the stockholders says:

"The period of readjustment to which the president referred in his last annual report still continues and uncertain business conditions prevail. Your property has been maintained in a high degree of efficiency and is fully prepared to meet the renewal of activities which the president hopes will shortly be realized."

The consolidated balance sheet of the Baldwin Locomotive Works and Standard Steel Works Company as of December 31, 1921, follows:

Assets—	
Baldwin Locomotive, 1921, real estate, etc.....	\$27,079,542
Std. Stl. real estate, etc.....	9,458,571
Investments	387,795
Inventories	7,000,736
Accounts receivable	10,100,486
Bills receivable	10,293,918
Securities	657,484
Bonds, notes, etc	23,833,715
Cash	2,172,142
Advances, engineers, etc	320,223
Sinking fund	1,678,25
	\$92,983,338
Liabilities—	
Baldwin Locomotive capital stock.....	\$40,000,000
B. L. 1st mortgage bonds.....	10,000,000
Std. St. 1st mortgage bonds.....	2,200,000
Accounts payable	5,590,718
Depositors' saving fund	5,000,000
Advances	1,676,993
Interest	1,041,150
Reserves	959,741
Sinking fund account	5,854,138
Surplus	2,800,000
	\$92,983,338

The annual dinner of the **Chicago Railway Equipment Company** was held at the Union League club, Chicago, the evening of February 7 and was attended by a large number of officers of railways and of railway supply companies. One of the principal features of the evening was the showing of moving pictures illustrating the various plants of the company and the detailed process of making its various products. James A. Emery of Washington delivered an address showing the tendency of government regulation to restrict freedom and initiative in the management of increasing numbers of business concerns and pointing out the dangers to the welfare of the country in this tendency.

C. W. Holt, secretary and general manager of the **Curtain Supply Company**, Chicago, has been elected a vice-president in charge of all operations of the company; **Ross F. Hayes**, eastern sales manager, with headquarters at New York City, has been appointed general sales manager, with headquarters at Chicago; **T. P. O'Brien** has been appointed district sales manager, in charge of the eastern office at New York City, and **Ralph Brown** has been appointed district sales manager of the western district with headquarters at Chicago; **G. B. Allison** has been appointed assistant to Mr. O'Brien and **Edward E. Whitmore** assistant to Mr. Brown.

Obituary

William A. Barstow, president of the **Union Tank Car Company**, New York, died of pneumonia at his home, Hutton Park, West Orange, N. J., on February 10. Mr. Barstow was born on September 27, 1877, at Cleveland, Ohio, and was educated at the Dearborn Morgan School, Orange, N. J., and at Yale University, graduating from the latter in 1899. The same year he entered the employ of the Atlantic Refining Company at Franklin, Pa. He subsequently served in many branches of the oil industry and in October, 1914, resigned as vice-president of the Imperial Oil Company at New York to become assistant to president of the Union Tank Car Company. Later he was promoted to senior vice-president and since 1919 served as president of the same company.

Frank S. Dinsmore

Frank Solyman Dinsmore, for the last 24 years a member of the business department staff of the *Railway Age*, died at the Long Island College Hospital, Brooklyn, N. Y., at 1:30 on the morning of February 14, of chronic interstitial nephritis.



Frank S. Dinsmore

The end came sooner than was expected. On January 4, following advice of his doctor, Mr. Dinsmore sailed for the British West Indies in the hope that the warm climate would help nature, and that his life might thus be prolonged. But it was too late. By the time the steamer reached Barbadoes Mr. Dinsmore was too weak to disembark; so he came back, was taken to the hospital and there the spark of life gradually dimmed and then went

out. With characteristic optimism, he scarcely realized the seriousness of his condition; and he passed away unconscious of the end and without pain.

Funeral services were held in Brooklyn, where he had lived, on the morning of February 16, after which the body was taken to Chicago. A second service will be held at Rosehill Cemetery, Chicago, today (February 18), after which the body will be cremated.

Mr. Dinsmore is survived by a brother, a sister, a half-brother and a half-sister.

"F. S. D.", as he liked to be called and which he frequently applied to himself when reminiscing, was born at Berlin, Wis., May 13, 1859. His father, a pioneer, trekked by wagon from his birthplace in New Hampshire to northern New York, where he married before going West. At the age of 12, Frank, disgusted by his inability to convince his teacher that he was right in an argument when he was sure of the position he had taken, threw aside his books and went to work for his father, a maker of farm implements. In 1881 he made up his mind to study medicine; and for the next 16 years he so applied himself when not selling medical books to get money with which to pay his tuition fees. Thinking that his

ambition to become a surgeon would be advanced thereby, he joined the staff of the Railway Surgeon in 1894, that paper being then published by the owner of the *Railway Age*. Three years later he transferred his affections to the latter publication and came to New York as its eastern representative. From that time to his death he was almost literally wedded to the *Railway Age*; because for it he lived and, in a sense, died—for he might have been spared longer had his devotion to his work not caused him to regard with contempt, until too late, the warnings he heard on every hand and of which he himself must have been convinced.

In trying to visualize another's character, it is not always easy to know just where to start. With Frank Dinsmore, he was, first of all, a philosopher, with characteristic calmness of temper and judgment and practical wisdom; to which should be added a natural love for his fellow man, gentleness, uprightness and loyalty.

Looking back over the last 24 years and applying to him those splendid attributes which were his, it is not hard to understand how, in the early days of the *Railway Age*, Frank Dinsmore, with his philosophical mind, an abiding faith in his mission and tireless devotion to duty, saved the day over and over again when the till was empty and the liabilities far exceeded the assets. At that time he might have advanced further along the road to material prosperity had he so willed; but instead he elected to stay in the niche he himself had selected, that his conscience might not be charged with lack of devotion to the man who had given him his job (the late Hugh M. Wilson) and to whom he had pledged his all.

Mr. Dinsmore's principal work was that of an advertising salesman; and therein lay the tangible measure of his pecuniary worth to this institution. But his employer values most what he did, by living example and fatherly advice, to help and encourage the younger men of the entire staff—business and editorial. When discouraged, he lifted them out of their depths; if he saw their jobs in jeopardy, he diplomatically and unobtrusively tried to awaken the sort of interest and ambition which would overcome the failing; and when they required a guiding hand, it was his that was always outstretched.

And with his tribute to Mr. Dinsmore's immeasurable worth his employer of the last 14 years unstintingly links his own sense of obligation for the unwavering loyalty and devotion that was reflected in so many varied and delightful ways. With employer and co-workers alike, Mr. Dinsmore's death has created a vacancy that is real. Everyone who was intimately acquainted with him will have as his most lasting impression the beautiful example his living afforded.

E. A. S.

Albert C. Ashton, treasurer of the Ashton Valve Company, East Cambridge, Mass., died on January 31, at St. Petersburg, Fla., where he had been for several weeks on account of

ill health. He was born in England, 52 years ago and was a son of the late Henry G. Ashton, founder of the Ashton Valve Company. Albert C. Ashton graduated from Chauncy Hall School, Boston, and the Massachusetts Institute of Technology where he pursued a course in engineering. For over 20 years he had served as treasurer of the Ashton Valve Company and part of this time served also as general manager. Mr. Ashton took a constant and active interest in the local affairs of Somerville, Mass., where he had resided since his schoolboy days, and he was a member of many social and business organizations.

A. C. Ashton



Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company will construct an extension to its lines from Owen, Okla., to Pawhuska, a distance of approximately 40 miles.

CHICAGO, BURLINGTON & QUINCY.—This company will soon receive bids for the construction of a new passenger station at Aurora, Ill. A temporary frame station will be constructed at that point by company forces.

CHICAGO GREAT WESTERN.—This company is receiving bids for the construction of a two-story frame office building at St. Paul, Minn.

CHICAGO UNION STATION.—This company has awarded a contract to R. C. Wieboldt, Chicago, for the construction of a temporary frame passenger station at Canal and Jackson streets, in that city, estimated to cost approximately \$12,000. This structure will be used for the suburban service of the Chicago, Burlington & Quincy during the construction of the main passenger building.

CHICAGO UNION STATION.—This company will soon request bids for the construction of a power plant at Harrison and Canal streets, Chicago.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company will construct a second main track from Farmland, Ind., to a point about two miles east of Muncie, a distance of approximately 12 miles.

GREAT NORTHERN.—This company contemplates the construction of a second main track between Surrey, N. D., and Minot, a distance of 7.3 miles, estimated to cost \$140,000; between Dean, Wash., and Hillyard, a distance of 9 miles, estimated to cost \$180,000; and between Spokane, Wash., and Fort Wright, a distance of 2.7 miles, estimated to cost \$54,000.

ILLINOIS CENTRAL.—This company will construct a freight and passenger depot at Baton Rouge, La. It is expected that bids will be called for within a month.

MINERETS & WESTERN.—This company which was noted in the *Railway Age* of January 14 (page 207), as receiving bids for the construction of a 35.5 miles standard gage railroad extending from Fresno, Cal., into timber lands, has awarded the contract for this work to the Warren Construction Company, San Francisco, Cal. The estimated cost of the construction is \$800,000 exclusive of bridges.

MISSOURI PACIFIC.—This company will receive bids until February 20, for the construction of a one-story building at Winnsboro, La., estimated to cost \$10,000.

MISSOURI PACIFIC.—This company, which was noted in the *Railway Age* of February 11 (page 402), as receiving bids for the construction of a service building at Little Rock, Ark., estimated to cost \$12,000, has awarded the contract for this work to J. D. Fitzgibbon, St. Louis, Mo.

NEW HOLLAND, HIGGINS & MT. VERNON.—The Interstate Commerce Commission has issued a certificate authorizing the construction of a line extending from a connection with the Norfolk Southern and Wenona, to New Holland, N. C., a distance of 35 miles.

NEW YORK CENTRAL.—This company will receive bids until noon, February 24, covering the manufacture and delivery (and, if desired, erection) of the structural steel for the proposed bridge of the Hudson River Connecting Railroad over the Hudson river, south of Castleton, New York.

TENNESSEE EASTMAN CORPORATION.—This corporation contemplates the construction of a line from Kingsport, Tenn., into Hawkins County, a distance of about 20 miles. Surveys have been made but no final decision has been made as to the undertaking of the work.

Mass., where he had resided since his schoolboy days, and he was a member of many social and business organizations.

Railway Financial News

ATLANTA, BIRMINGHAM & ATLANTIC.—Application for Loan Denied.—The Interstate Commerce Commission has denied the application of the receiver for a loan of \$615,592, on the ground that no showing has been made that the loan is necessary to enable the road to meet the transportation needs of the public or that its prospective earning power is sufficient to afford adequate security for the loan.

BALTIMORE & OHIO.—Equipment Trusts Offered.—An issue of \$10,284,300 equipment trust 6 per cent. gold notes is being offered at prices to yield from 5.50 to 5.75 per cent, by a syndicate composed of the Bankers Trust Company, Dominick & Dominick, Hornblower & Weeks, Marshall Field, Glore, Ward & Co., the Union Trust Company of Pittsburgh, Harrison, Smith & Co. and the Northern Trust Company of Chicago. These notes mature serially, approximately \$791,000 annually, on January 15, 1923 to 1935, inclusive.

CHESAPEAKE & OHIO.—Asks Authority to Abandon Ferry.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the abandonment of its passenger and freight ferry across the Ohio river between Russell, Ky., and Ironton, Ohio.

CHICAGO, MILWAUKEE & ST. PAUL.—Authorized to Acquire Control.—The Interstate Commerce Commission has authorized the acquisition of control by this company of the Chicago, Milwaukee & Gary by purchase of the capital stock. Authority was also granted to assume obligation or liability as guarantor in respect of not exceeding \$3,000,000 of first mortgage, 40-year, 5 per cent bonds of the Chicago, Milwaukee & Gary by endorsing thereon the guarantee of the C. M. & St. P. of the payment of the principal and the interest after January 1, 1924. The bonds when so endorsed are to be redelivered to the St. Louis Union Trust Company. The commission says there appears to be no necessity at this time for the guarantee of the \$2,700,000 of bonds to be retained by the St. Paul and consideration of that part of the application was, therefore, deferred.

DENVER & RIO GRANDE.—Sutro Committee Opposes Reorganization Plan.—The Sutro committee, representing the 7 per cent cumulative adjustment mortgage bonds of the Denver & Rio Grande, has issued a letter to holders of those securities, setting forth its objections to the Western Pacific's proposed reorganization of the old Denver company. The principal points raised are:

First, failure to provide for the acquisition by the reorganized company of the equity in the Utah Fuel Company stock, thus depriving the reorganized company of the control of a part of its fuel supply; secondly, it is pointed out, the plan requires holders of adjustment and refunding bonds to permit an unlimited unifying mortgage to be placed on the property ahead of all other securities to be issued under the plan.

The committee's letter says:

Although the proposed sinking fund bonds, which the holders of adjustment and refunding bonds are asked to take, in respect of the other 50 per cent of their present holdings, are to be subordinated by the proposed plan to this unlimited issue of new unifying bonds, the plan fails to accord any representation whatever on the board of directors of the reorganized company to the holders of these sinking fund bonds or adjustment bonds—thus denying to the holders of these bonds any effective check upon (a) the issue of unifying bonds for the purposes not in the interests of the holders of the proposed sinking fund bonds; (b) the diversion of traffic or earnings (by inequitable divisions of rates, traffic and trackage contracts, and otherwise); (c) the impairment of the assets of the reorganized company by unwarranted dividend payments on its common stock.

From exhibit 3 attached to the proposed plan it appears that, for the ten-year period ending December 31, 1920, the average earnings of the railroad company, exclusive of dividends, interest on securities and interest on bank balances and excepting only dividends on the stock of the Rio Grande Junction Railway Company, applicable to interest on funded debt, averaged over \$6,500,000 per year—or about \$1,000,000 per year in excess of the total interest requirements on the adjustment bonds, the refunding bonds, and all underlying issues. It is difficult therefore to conceive of the necessity for the drastic plan of the reorganization that has been proposed.

KANSAS & OKLAHOMA.—Asks Authority to Issue Stock.—This company has applied to the Interstate Commerce Commission for authority to issue \$1,500,000 of capital stock to complete the

construction of its new line from Forgan, Okla., to Richfield, Kans.

KNOXVILLE & CAROLINA.—Asks Authority to Issue Securities.—An application has been filed with the Interstate Commerce Commission for authority to issue \$400,000 of capital stock and \$300,000 of first mortgage bonds. The stock and \$82,000 of the bonds is to be delivered at par for the acquisition of the Knoxville, Sevierville & Eastern and \$100,000 of the bonds to be sold to pay improvements.

MEMPHIS, DALLAS & GULF.—Asks Authority to Abandon Lines.—The receiver has applied to the commission for a certificate authorizing the abandonment of the lines from Glenwood and Hot Springs, Ark., 53.3 miles; Graysonia to Leard, 5.49 miles; Daleville to Clark Mill, 10.64, and Nashville to Shawmut, 33.97 miles.

MISSOURI, KANSAS & TEXAS.—Authorized to Extend Receiver's Certificates.—The Interstate Commerce Commission has authorized a further extension of the maturity of \$3,000,000 of receiver's certificates from February 15 to May 15 by endorsement.

NEW YORK, NEW HAVEN & HARTFORD.—Asks Government Loan.—This company has applied to the Interstate Commerce Commission for a loan of \$31,324,000 from the revolving fund for 10 years, of which it is proposed to use \$26,258,000 to pay debentures of the European loan maturing April 1, \$2,066,000 to meet equipment trust and other maturities, and \$3,000,000 for additions and betterments.

Following a meeting of the directors on Tuesday President E. J. Pearson stated that the application for a loan of \$31,324,000 was submitted for the purpose of presenting the entire situation of the New Haven to the representatives of the government.

TENNESSEE CENTRAL.—Asks Government Loan.—This company has applied to the Interstate Commerce Commission for a loan of \$2,250,000 from the revolving fund for 10 years, of which \$1,250,000 is to be used for additions and betterments and \$1,000,000 to meet short term obligations.

Dividends Declared

Southern Pacific.—1½ per cent, quarterly, payable April 1 to holders of record February 28.

Union Pacific.—Common, 2½ per cent, quarterly; preferred, 2 per cent; both payable April 1 to holders of record March 1.

Cincinnati Northern. 3 per cent, payable March 1 to holders of record February 21.

Pittsburgh, Youngstown and Ashtabula. Preferred, \$1.75, quarterly, payable March 1 to holders of record February 20.

Trend of Railway Stock and Bond Prices

	Feb.	Last 14 week.	Last year.
Average price of 20 representative railway stocks close of business.....	59.07	57.98	56.57
Average price of 20 representative railway bonds close of business.....	82.23	82.05	74.72



Unloading Coal from Container-Car to Motor Truck in Poland

Railway Officers

Executive

G. R. Loyall, president of the Norfolk Southern, has been elected president of the Norfolk Terminal, succeeding **C. W. Huntington**, president of the Virginian. **N. D. Maher**, president of the Norfolk & Western, has been elected vice-president of the Norfolk Terminal, succeeding Mr. Loyall.

Claude K. Boettcher, whose election as vice-president of the Tennessee Central, with headquarters at Nashville, Tenn., was announced in the *Railway Age* of January 28 (page 304), was born at Boulder, Colo., on June 10, 1875. Mr. Boettcher is the senior partner of the firm Boettcher, Porter & Co., investment bankers at Denver, Colo. He has been associated with various railroads at different times, largely through financial matters. From 1900 to 1906, he was vice-president of the Great Western, with headquarters at Denver, and from 1913 until 1919, he was chairman of the board of directors of both the Denver City Tramways and the Denver Intermountain, which latter positions were his last railroad connections prior to the time of his recent appointment.

Andrew P. Titus, general manager of the Chicago & Alton, with headquarters at Chicago, has been elected vice-president in charge of operation, with the same headquarters. Mr.

Titus was born on a farm near Princeton, N. J., on April 11, 1873, and was educated at Princeton Preparatory School and at Princeton College. He entered railroad service on July 1, 1890, in the car department of the Lake Shore & Michigan Southern (New York Central), at Cleveland, Ohio. From 1893 to 1895 he was employed by a mining company in Mexico, and, in June of the latter year, he re-entered the service of the Lake Shore & Michigan Southern at Cleveland. He left in May, 1900, to become

car distributor and chief clerk to the superintendent of the car service department of the Wheeling & Lake Erie. He was promoted to superintendent of car service, with headquarters at Pittsburgh, Pa., in November, 1905, and to assistant superintendent of transportation, with headquarters at Canton, Ohio, in May, 1907, which latter position he held until July 1, 1912, when he was promoted to superintendent of the Toledo division. He left in August, 1912, to become general superintendent of the Chicago & Alton, with headquarters at Chicago. He was promoted to general manager, with the same headquarters, on November 1, 1915, which position he was holding at the time of his recent promotion.

Financial, Legal and Accounting

W. M. Mooney, whose election as comptroller of the Tennessee Central, with headquarters at Nashville, Tenn., was announced in the *Railway Age* of February 4 (page 355), was born at Three Rivers, Que., on March 13, 1867. He entered railroad service on August 15, 1888, as a clerk in the car accountant's office of the St. Joseph & Grand Island at St. Joseph, Mo. From January 1, 1890, to September 15, 1892, he was a car clerk on the Chicago, St. Paul & Kansas City (Chicago Great Western) at St. Joseph. He returned to the

St. Joseph & Grand Island on the latter date and was successively station accountant, revising clerk, interline freight clerk and chief clerk of freight accounts. On November 1, 1902, he was made chief clerk to the auditor which position he held until August 15, 1907, when he was promoted to auditor and cashier of that road, and of the St. Joseph Terminal R. R., with headquarters at St. Joseph. He left on November 15, 1909, to become auditor of the Tennessee Central, with headquarters at Nashville, which position he was holding at the time of his recent promotion.

Operating

J. M. Shea has been appointed superintendent of the Northern division of the Norfolk Southern with headquarters at New Bern, N. C., and **J. S. Cox** has been appointed to a similar position on the Southern division with headquarters at Raleigh, N. C. The territory covered by these divisions was formerly distributed among three divisions. The Northern division, as it now is, includes: the main line from Norfolk to New Bern and Beaufort to Goldsboro; the Currituck, Kempsville, Suffolk, Elizabeth City, Columbia, Belhaven, Pinetown and Oriental branches; and Marsden Yard. The new Western division includes the main line from Marsden to Charlotte and the Fayetteville, Aberdeen & Asheboro. Ellerbe and Jackson Springs branches.

Traffic

H. W. Gillis has been appointed assistant general freight agent of the Canadian Pacific, Eastern Lines.

Clement S. Ucker has been appointed director of development of the Seaboard Air Line with headquarters at Savannah, Ga.

H. G. Sullivan, commercial agent of the Central of Georgia, with headquarters at Athens, Ga., has been transferred to Montgomery, Ala.; he will be succeeded by **J. Y. Bruce**.

A. P. Smirl, assistant general freight agent of the Texas & Pacific, with headquarters at Dallas, Tex., has been promoted to assistant freight traffic manager with headquarters at New Orleans, La., succeeding **J. S. Houston**, resigned.

R. D. Johnson, city passenger agent of the Atchison, Topeka & Santa Fe, Coast Lines, with headquarters at San Francisco, Cal., has been promoted to division passenger agent, with the same headquarters, succeeding **J. F. Moses**, promoted.

B. S. Merritt, general agent of the Great Northern, with headquarters at Spokane, Wash., has been promoted to assistant general freight agent, with headquarters at Seattle, Wash. He will be succeeded at Spokane by **J. F. Pewters**, general agent with headquarters at Great Falls, Mont. **A. J. Grummett** has also been appointed assistant general freight agent, with headquarters at Seattle.

Mechanical

J. A. Conley, master mechanic of the Atchison, Topeka & Santa Fe, with headquarters at Calwa, Cal., has had his jurisdiction extended over the shops at Richmond, Cal., succeeding **E. H. Harlow**, formerly superintendent of shops, with headquarters at that point, who died on January 26, after which time his position was abolished.

M. W. Boucher, locomotive foreman of the Canadian Pacific, with headquarters at Field, B. C., has been appointed general locomotive foreman of the Edmonton, Dunvegan & British Columbia, with headquarters at McLennan, Alta. He will have direct supervision over both the mechanical and car departments, the positions of master mechanic and locomotive foreman having been abolished.

Engineering, Maintenance of Way and Signaling

Stewart J. Dewey, assistant signal engineer of the Cleveland, Cincinnati, Chicago & St. Louis, has resigned to enter

the service of the Electric Storage Battery Company (see item under Supply Trade News).

De Witt C. Fenstermaker, whose appointment as principal assistant engineer of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, was announced in the *Railway Age* of February 11 (page 406), was born on December 27, 1873, at Basil, Ohio. He entered railroad service in 1893 as a rodman on the Toledo & Ohio Central, and was later successively promoted to instrumentman, draftsman, and assistant engineer, which latter position he held until 1898, when he entered the army for service in the Spanish-American war. From 1899 to 1902 he was assistant engineer in the engineering department of the government of Cuba. Upon returning to this country he entered the service of the Lake Erie, Alliance & Wheeling as resident engineer. He left in 1903, to become resident engineer of the Louisiana Railway & Navigation Company and was soon thereafter promoted to division engineer, and later to chief engineer, with headquarters at Shreveport, La. From 1908 until 1910 he was city engineer of Tulsa, Okla., and from the latter date until 1912, he was designing engineer of the Lehigh & New England. He left in 1912 to become assistant engineer of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago. He was promoted to district engineer, with the same headquarters in March, 1919, and, in April, 1921, he was granted a leave of absence in order that he might act as chief engineer for Peterson, Shirley & Gunther, Omaha contractors, in charge of constructing 50 miles of railroad in Eastern Cuba for the Atlantic Fruit Company which work he was engaged in up to the time of his recent appointment.

F. J. Nevins, whose appointment as valuation engineer of the Chicago, Rock Island & Pacific, with headquarters at Chicago, was announced in the *Railway Age* of February 11 (page 406), was born near Baxter Springs, Kan., in 1872. He entered railroad service in 1892, as a clerk in the local freight office of the Missouri, Kansas & Texas at Denison, Tex., leaving that road in 1893, to enter the service of the Missouri Pacific as a freight brakeman at Osawatomie, Kan., where he was successively conductor, yardmaster and chief clerk to the general foreman of bridges and buildings until 1904, when he was promoted to chief maintenance of way accountant for the entire system, with headquarters at St. Louis, Mo. One year later he was made chief clerk to the chief engineer of maintenance of way, which position he held until 1910, when he left railroad service to become sales and traffic manager of the Portland Cement Company, with jurisdiction over the Southwestern states, and with headquarters at Dallas, Tex. He re-entered railroad service in 1911 as assistant to the vice-president and general manager of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., which position he held until 1914, when he entered the service of the Chicago, Rock Island & Pacific as chief clerk to the engineer in charge of track elevation work at Chicago. He was promoted to chief accountant in the valuation department in 1916, with the same headquarters, which position he held up to the time of his recent promotion.

Purchasing and Stores

E. H. Gaines, Jr., has been appointed purchasing agent of the Tennessee Central, with headquarters at Nashville, Tenn.

Obituary

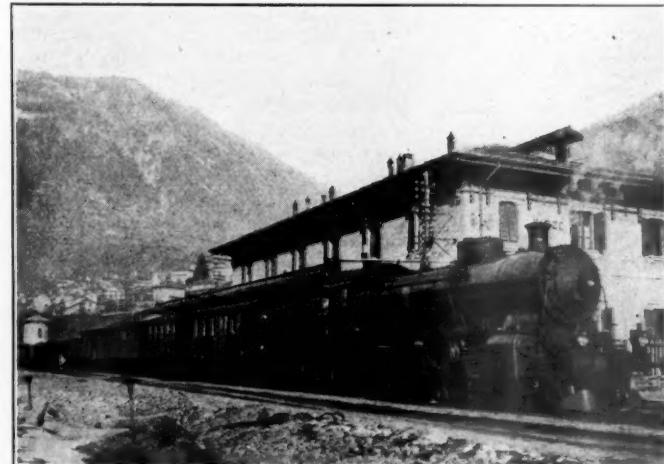
W. G. Bayley, superintendent of the Cleveland, Cincinnati, Chicago & St. Louis with headquarters at Springfield, Ohio, died at Urbana, Ohio, on February 13 at the age of 57, after a lingering illness. Mr. Bayley was born at Hollidaysburg, Pa., and entered railroad service with the Pennsylvania in the engineering department. He later was transferred to the Cleveland, Cincinnati, Chicago & St. Louis and was promoted to engineer, maintenance of way and later to superintendent. Mr. Bayley had been superintendent at Springfield since 1897.

Herbert De Forest Howe, vice-president and general counsel of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio, whose death was noted in the *Railway Age* of February 4 (page 356), was born on November 24, 1876, at Morris, Ill. He entered railroad service on November 1, 1898, in the law department of New York Central, Lines West, and served in various legal capacities for that road. In 1909, he organized its general land and tax department and was made general land and tax agent for the western lines. He entered the service of the New York, Chicago & St. Louis on May 15, 1917, as general counsel, with headquarters at Cleveland, and in June, 1917, he was promoted to vice-president and general counsel, with the same headquarters which position he was holding at the time of his recent death.

George K. Warner, treasurer and assistant secretary of the St. Louis Southwestern, with headquarters at St. Louis, Mo., died at his home in that city on February 11, after an illness of two weeks. Mr. Warner was born on September 2, 1860, at Mobile, Ala., and entered railroad service in 1883, as a storekeeper on the New Orleans and Mobile divisions of the Louisville & Nashville. He left in the latter part of that year to become chief clerk to the master mechanic of the Texas & St. Louis, at Jonesboro, Ark., and later at Pine Bluff. From July 10, 1884, to December 5, 1888, he was promoted successively to clerk, bookkeeper, and chief clerk in the accounting department, during which period the name of the company was changed by reorganization to St. Louis, Arkansas & Texas. He was appointed acting treasurer of that company on December 5, 1888, and was elected treasurer on January 14, 1889. On January 16, 1891, upon the reorganization of the company again, he was elected treasurer and assistant secretary which position he was holding at the time of his recent death. He was also secretary and treasurer of the Shreveport Bridge & Terminal Company; vice-president and treasurer of the Grays Point Terminal, the Valley Terminal, the Paragould Southeastern, the Pine Bluff Arkansas River and the Central Arkansas & Eastern; was also assistant secretary and assistant treasurer of the Southwestern of Texas, Stephenville North & South Texas, Dallas Terminal & Union Depot Company, and the Eastern Texas.



F. J. Nevins



Just Over the Italian-Swiss Frontier in Italy—Simplon Line